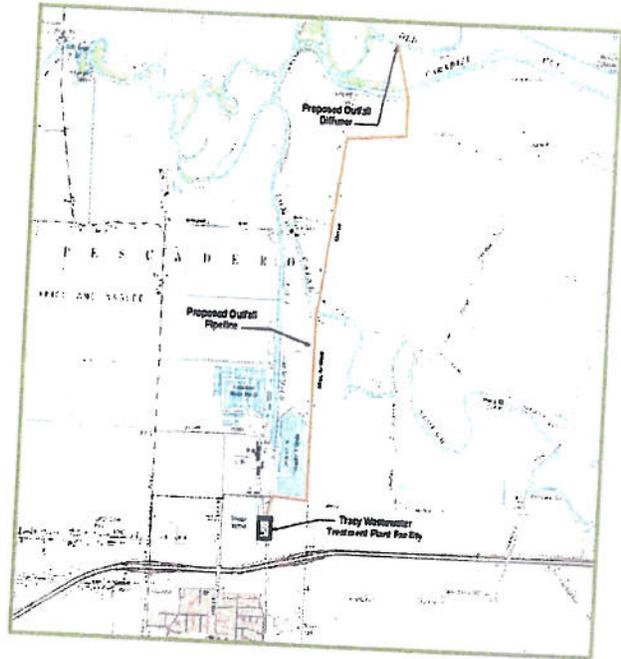


# TRACY WASTEWATER TREATMENT PLANT EXPANSION DRAFT ENVIRONMENTAL IMPACT REPORT

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SCH No. 2000012039



*PREPARED FOR:*

**CITY OF TRACY**  
520 TRACY BOULEVARD  
TRACY, CA 95376

*PREPARED BY:*

**PMC**

PLANNING AND CONSULTING

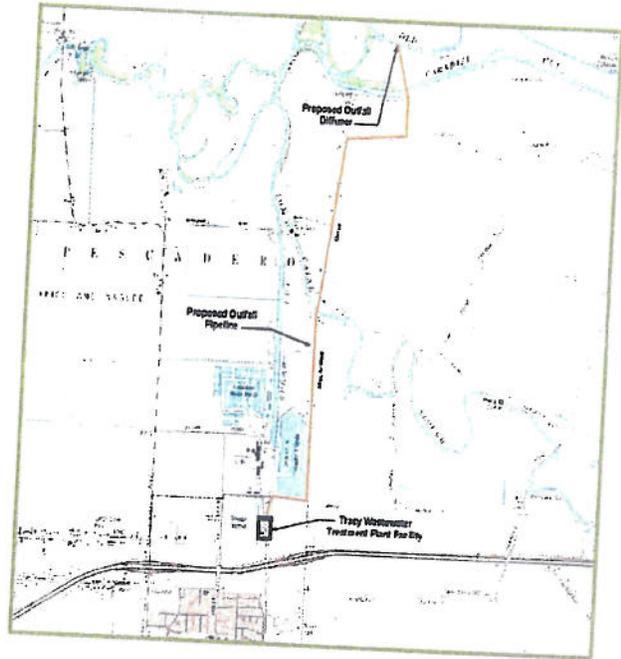
10461 OLD PLACERVILLE ROAD, SUITE 110  
SACRAMENTO, CA 95827

OCTOBER 2001

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**DRAFT ENVIRONMENTAL IMPACT REPORT**

**FOR THE**

**TRACY WASTEWATER TREATMENT PLANT EXPANSION**

---

**SCH No. 2000012039**

*Prepared for:*

**CITY OF TRACY**  
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**OCTOBER 2001**

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### APPENDICES

Appendix A Notice of Preparation and NOP Comments

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## 1.0 EXECUTIVE SUMMARY

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## 1.0 EXECUTIVE SUMMARY

This section provides an overview of the project and the environmental analysis. For additional detail regarding specific issues, please consult the appropriate chapter of Section 4.0, (Environmental Setting, Impacts, and Mitigation Measures).

### 1.1 PURPOSE AND SCOPE OF THE EIR

This EIR provides an analysis of the potential environmental effects associated with the expansion of the current City of Tracy Wastewater Treatment Plant (WWTP), located on the corner of Larch Road and Holly Drive within the northern portion of the City of Tracy Urban Management Plan (UMP) area and within City limits. The phased project will increase the WWTP capacity from 9.0 million gallons per day (MGD) average dry-weather flow (ADWF) to 16.0 MGD, providing adequate wastewater treatment capabilities for existing and planned future populations within the City of Tracy service area. The project would be funded primarily by the City of Tracy, but may utilize State Revolving Fund (SRF) money as well. The analysis contained in this EIR is consistent with the State's CEQA guidelines for projects receiving SRF financing.

The EIR adopts a credible worst-case scenario of the impacts resulting from project implementation. Where appropriate, some impacts are analyzed under future conditions, which assume build-out of reasonably foreseeable projects in the region. Other issues that are site specific in nature are evaluated against baseline conditions.

### 1.2 PROJECT CHARACTERISTICS

The project involves increasing the wastewater treatment capacity of the existing WWTP to correspond with projected population growth in the City of Tracy. Increased plant capacity would be made possible by installing additional treatment facilities on unused portions of the existing site. A new effluent conveyance pipeline and outfall to Old River is also proposed as part of the expansion.

In addition to an increased wastewater flow capacity, the plant would be upgraded in anticipation of more stringent effluent discharge requirements.

The primary objectives of the Wastewater Treatment Plant Expansion project, as identified by the City of Tracy, are as follows:

- Provide adequate wastewater treatment capabilities sufficient to treat wastewater flows generated by existing and planned future populations within the service area.
- Provide a cost-effective means for treating wastewater while minimizing potential impacts to the environment.
- Provide additional wastewater facility capacity in conformance with the goals and policies of the City of Tracy Urban Management Plan (a General Plan) and Wastewater Master Plan.

## 1.0 EXECUTIVE SUMMARY

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### 1.3 PROJECT ALTERNATIVES SUMMARY

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project, which could feasibly attain the basic objectives of the project and avoid and/or lessen the environmental effects of the project. The alternatives are summarized below. Section 6.0 (Alternatives to the Project) provides a full description and analysis of the alternatives.

#### NO PROJECT ALTERNATIVE

The No Project Alternative would result in no changes to facilities at the WWTP and continued use of the existing diffuser at Old River.

#### DISPOSAL ALTERNATIVES

**Co-location Alternative** – New pipeline and outfall diffuser adjacent to existing outfall on Old River

**Dougherty Cut Alternative** – New pipeline and outfall diffuser at Dougherty Cut

**Old River South Alternative** – New outfall diffuser at Old River southwest of existing outfall.

**Sugar Cut Alternative** – New pipeline and outfall diffuser at Sugar Cut.

**Tom Paine Slough Alternative** – New pipeline and outfall diffuser at Tom Paine Slough.

**Maximum Summertime Reuse of Recycled Water (no seasonal storage)** – Piping water to customers for reclamation and reuse purposes in Summer months and discharging to Old River in the Fall, Winter and Spring.

**Maximum Reuse of Recycled Water (with seasonal storage)** – Piping water to customers for reclamation and reuse purposes in the Summer months and storing flows in the Fall, Winter and Spring (i.e. no discharge).

#### TREATMENT ALTERNATIVES

**Peak Hour Dry Weather Filtration for Tertiary Treatment (23 MGD)** – Provides filtration for peak hour dry-weather flow. During periods of peak-hour wet weather flow, this alternative would provide partial filtration (i.e. it would accommodate only 23 MGD instead of 30 MGD).

**Advanced Treatment** – Post-tertiary treatment to remove trace organics, metals and dissolved materials (e.g. salts). Filtered effluent would be put through a series of membranes under pressure to remove residual materials prior to discharge.

1.4 AREAS OF CONTROVERSY

In accordance with Section 15082 of the CEQA Guidelines, the City of Tracy prepared and distributed a Notice of Preparation (NOP) of an EIR on January 12, 2000. The City of Tracy was identified as lead agency for the proposed Project. The NOP was circulated to the public, local, state, and federal agencies, as well as other interested parties to solicit comments on the proposed project. The NOP and comments are presented in **Appendix A**.

The NOP identified that the proposed project may result in the following environmental impacts to be evaluated in the EIR:

- Air Quality
- Biological and Natural Resources
- Historic and Cultural Resources
- Geology and Soils
- Transportation and Circulation
- Human Health/Risk of Upset
- Surface Hydrology, Groundwater and Water Quality
- Land Use
- Noise
- Public Services and Utilities

Based on the City's evaluation provided in the NOP, the following environmental issue areas will not be addressed in the EIR, as the project will not result in a significant impact to them:

- Aesthetics
- Agricultural Resources
- Population/Housing
- Mineral Resources
- Recreation

Several agencies responded to the NOP. Issues of concern raised by these agencies are summarized below. These issues are addressed in the EIR.

- Consideration of disposal alternatives in lieu of Old River.
- Effects of increased effluent discharges in Old River to drinking water utilities.
- Public health impacts.
- Salinity concentrations, pathogens, heavy metals, etc. in WWTP discharge.
- Long-term compliance with recent revisions to the federal drinking water statutes and regulations.
- Impacts to federally-listed species and their habitats.

## 1.0 EXECUTIVE SUMMARY

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- Alternative water sources available to the City in lieu of the Delta Mendota Canal.
- Alternative use of discharged water (e.g. reclamation).
- Current surface water quality of Old River.

## 1.5 SUMMARY OF ENVIRONMENTAL IMPACTS

**Table 1-1** presents a summary of Project impacts and proposed mitigation measures that would avoid or minimize potential impacts. In the table, the level of significance of each environmental impact is indicated after the application of the recommended mitigation measure(s).

For detailed discussions of all Project impacts and mitigation measures, the reader is referred to topical environmental analysis sections in Section 4.0.

TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>4.2 Human Health /Risk of Upset</b> <b>Impact 4.2.1</b> Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact could be <b>potentially significant</b>.</p>	PS	<p><b>MM 4.2.1</b> Prior to construction, coordination with property owners and regulators will confirm the presence of contaminants in the vicinity of the construction areas. If necessary, the location of structures to be constructed will either be moved, e.g., the pipeline will be rerouted, or protection of worker health and safety would be maintained through adherence to state and federal occupational health and safety and hazardous waste standards. If hazardous materials are unexpectedly encountered during construction, work will be halted until regulatory agencies have been notified and permission has been obtained to proceed with construction. In this case, adequate personal protective equipment will be used to protect worker health and safety and an appropriate disposal location will be identified for the contaminated soil. <i>Timing/Implementation: The measure will be implemented prior to, and if appropriate, during project construction.</i> <i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services</i></p>	LS
<p><b>4.3 Traffic and Circulation</b> <b>Impact 4.3.1</b> Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a <b>significant impact</b>.</p>	S	<p><b>MM 4.3.1a</b> The City shall ensure that area roadways damaged by the project are returned to pre-project conditions. <i>Timing/Implementation: Prior to commencement of construction, and following completion of construction.</i></p>	LS

LS = Less Than Significant      PS = Potentially Significant      S = Significant      SU = Significant and Unavoidable

**1.0 EXECUTIVE SUMMARY**

**TABLE 1-1**  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p><i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, San Joaquin County Department of Public Works.</i></p> <p><b>MM 4.3.1b</b> The construction contractor shall notify, as appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, San Joaquin County Public Works Department, Road Maintenance Division about the schedule for project construction as soon as project approvals are received. The purpose of this notification will be to postpone any planned roadway resurfacing and/or improvement projects in the project area and coordinate such improvements projects with project construction schedule.</p> <p><i>Timing/Implementation: Following project approval.</i></p> <p><i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Department of Public Works.</i></p> <p><b>MM 4.3.1c</b> The construction traffic control plan shall include appropriate measures for traffic control such as methods for signage, partial lane closures, and restrictions on commute-hour construction. As appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, or San Joaquin County Public Works Department, Road Maintenance Division, will ensure access for residences along Arbor Avenue, MacArthur Drive and Delta Avenue is maintained</p>	

LS = Less Than Significant      PS = Potentially Significant      S = Significant      SU = Significant and Unavoidable

TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>4.4 Noise</b> <b>Impact 4.4.1</b> During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered <b>potentially significant</b>.</p>	<p>PS</p>	<p>during construction activities. The City of Tracy Department of Public Works or San Joaquin County Public Works Department, Road Maintenance Division shall provide noticing to the City of Tracy Police Department, San Joaquin County Sheriff Department and the Tracy Fire Department.</p> <p><i>Timing/Implementation:</i> Prior to commencing construction. <i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Department of Public Works.</p> <p><b>MM 4.3.1d</b> The construction contractor shall repair any project-related roadway damage, including new overlays on affected roadways.</p> <p><i>Timing/Implementation:</i> Following the completion of construction. <i>Enforcement/Monitoring:</i> City of Tracy Department of Public Works, San Joaquin County Department of Public Works.</p>	<p>LS</p>
<p>LS = Less Than Significant PS = Potentially Significant</p>	<p>S = Significant</p>	<p>MM 4.4.1 Where construction activities would occur within close proximity to noise-sensitive receptors, those activities should adhere to the requirements of the City of Tracy and San Joaquin County with respect to hours of operation, muffling of internal combustion engines, and other factors which affect construction noise generation and its effects on noise-sensitive land uses.</p>	<p>SU = Significant and Unavoidable</p>

1.0 EXECUTIVE SUMMARY

TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.4.2</b> Noise generated by mechanical equipment (pumps) located along the outfall pipeline could result in noise levels which exceed the San Joaquin County Coe noise polices at residences located near such equipment. Therefore, this is considered a <b>potentially significant</b> impact.</p>	PS	<p><b>Timing/Implementation:</b> <i>Prior to approval of final improvement plans.</i></p> <p><b>Enforcement/Monitoring:</b> <i>City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Planning/Community Development Department.</i></p>	LS
<p><b>4.5 Air Quality</b> <b>Impact 4.5.1</b> Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at <b>potentially significant impact.</b></p>	PS	<p><b>Timing/Implementation:</b> <i>Prior to approval of final engineering drawings.</i></p> <p><b>Enforcement/Monitoring:</b> <i>City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Planning/Community Development</i></p>	LS

LS = Less Than Significant      PS = Potentially Significant      S = Significant      SU = Significant and Unavoidable

TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>4.6 Surface Hydrology, Groundwater and Water Quality</b>  <b>Impact 4.6.1</b>                      Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a <b>potentially significant</b> impact. The proposed addition of a second diffuser will reduce the temperature impact from the existing condition.</p>		<ul style="list-style-type: none"> <li>• Limit vehicle speeds to 10 mph on unpaved roads.</li> <li>• Enclose, cover, or water excavated soil twice daily.</li> <li>• Stockpiles of excavated soil shall be covered at all times when the stockpile is not in use. The covers shall be secured.</li> <li>• Excavation activities shall be reduced or halted during high winds (e.g., that is when surface wind speeds exceed 20 miles per hour).</li> <li>• Replant vegetation in disturbed areas following the completion of grading and/or construction activities.</li> <li>• Minimize vehicle idling time to 10 minutes.</li> </ul> <p><i>Timing/Implementation: The mitigation measures will be implemented concurrently during all phases of project construction.</i></p> <p><i>Enforcement/Monitoring: The City of Tracy Department of Development and Engineering Services.</i></p>	
<p>LS = Less Than Significant                      PS = Potentially Significant</p>	PS	<p><b>MM 4.6.1</b>                      Section 7 consultation with the NMFS and USFWS shall be required in conjunction with Corps Section 10 Rivers and Harbors act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to special-status fish species. Consultation with CDFG would also be required to comply with the California Endangered Species Act. As part of the consultation process, a biological assessment shall be prepared by a fisheries biologist. The biological assessment shall evaluate potential temperature effects of final project design. A Mitigation Plan shall be prepared that includes measures to avoid or mitigate long-term</p> <p style="text-align: right;">S = Significant                      SU = Significant and Unavoidable</p>	LS

1.0 EXECUTIVE SUMMARY

TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.6.2</b> Construction of the project could result in temporary impacts to water quality. This would be a <b>potentially significant</b> impact.</p>	<p>PS</p>	<p>thermal impacts to fish species that occur as a result of this project. Mitigation measures that may be required include redesign of the diffuser to reduce temperature affects; conduct of post-implementation monitoring to determine if temperature plumes are resulting in fish avoidance; and/or incorporation of measures to prevent out-of-compliance releases when water temperatures are too high. Mitigation measures will be designed to reduce temperature impacts to less than 1 degree Fahrenheit change over 25% of the river cross section; the City will work with the regulatory agencies to determine the times of the year that these mitigation measures will be implemented. Discharge temperature limits may be specified for the project in a Biological Opinion issued under Section 7 of the Endangered Species Act, as conditions of the Corps permit, and/or as conditions imposed through the NPDES permit issued by the CVRWQCB.</p> <p><i>Timing/Implementation:</i> Prior to commencing construction in Old River</p> <p><i>Enforcement/Monitoring:</i> National Marine Fisheries Service, U.S. Fish and Wildlife Service, Army Corps of Engineers, City of Tracy Department of Public Works and the California Department of Fish and Game</p>	<p>LS</p>
<p><b>Impact 4.6.2</b> Construction of the project could result in temporary impacts to water quality. This would be a <b>potentially significant</b> impact.</p>	<p>PS</p>	<p>MM 4.6.2 Construction of the project will require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to satisfy federal and state regulatory requirements. The SWPPP would include a range of measures and Best Management Practices (BMPs) to minimize potential for stormwater runoff and accidental releases into surface waters during construction.</p>	<p>LS</p>

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1.0 EXECUTIVE SUMMARY

TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p>Elements of the SWPPP may include, but are not limited to, the following:</p> <ul style="list-style-type: none"> <li>BMPs for erosion control such as grading management techniques, drainage ditches, straw bales, gravel filter berms, dikes, filtering devices, or silt fences, or netting, as appropriate;</li> <li>Use of silt curtains in Old River prior to beginning construction activities;</li> <li>An environmental training program for all field personnel to communicate environmental concerns and appropriate work practices, including spill prevention and response measures;</li> <li>Identification of areas for refueling and vehicle maintenance activities and hazardous materials storage away from sensitive areas.</li> <li>Where feasible, install a storm drain interceptor on the WWTP site to provide an option for conveying stormwater to the emergency storage pond for subsequent treatment in the plant.</li> </ul> <p><i>Timing/Implementation: The SWPPP must be completed prior to beginning construction. Other measures must be implemented prior to beginning construction or during construction as appropriate.</i></p> <p><i>Enforcement/Monitoring: Central Valley Regional Water Quality Control Board, City of Tracy Department of Development and Engineering Services.</i></p>	

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**1.0 EXECUTIVE SUMMARY**

**TABLE 1-1  
EXECUTIVE SUMMARY TABLE**

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.6.3</b> From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be <b>potentially significant</b> for one or several 303(d)-listed pollutants.</p> <p><b>4.7 Geology and Soils</b></p> <p><b>Impact 4.7.1</b> Development of the project may expose WWTP plant facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a <b>potentially significant</b> impact.</p>	PS	<p>Because this issue is addressed through the broad state and federal programs, there is no state-specified mitigation measure proposed. This impact is considered <b>significant and unavoidable</b>.</p>	SU
<p><b>MM 4.7.1a</b> The City shall design all facilities in accordance with seismic design criteria of the most recent edition of the Uniform Building Code (UBC) for Seismic Zone 3. This shall be reflected in project improvement plans.</p> <p><i>Timing/Implementation: Prior to the approval of final improvement plans.</i></p> <p><i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, and City of Tracy Department of Public Works.</i></p> <p><b>MM 4.7.1b</b> The City shall retain a qualified geologist to prepare a geotechnical and soil engineering study for the project site identifying potential seismic hazards. The study shall include design standards for infrastructure facilities to minimize damage associated with liquefaction. The recommendation of the study shall be incorporated into plans.</p> <p><i>Timing/Implementation: Prior to the approval of final engineering drawings.</i></p> <p><i>Enforcement/Monitoring: City of Tracy Department of Public Works.</i></p>	S		LS

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1.0 EXECUTIVE SUMMARY

TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.7.2</b> Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a <b>potentially significant</b> impact.</p>	PS	<p><b>MM 4.7.2</b> In accordance with the California Building Code (Title 24, Part 2) Section 1804A.3 and A.5, liquefaction and seismic settlement potential shall be addressed in the design level geotechnical engineering investigations. Facilities shall be designed to withstand expected forces associated with seismic events. These design features shall be incorporated in project improvement plans.  <i>Timing/Implementation: Prior to the issuance of building permits.</i>  <i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services.</i></p>	LS
<p><b>Impact 4.7.3</b> The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a <b>significant</b> impact.</p>		<p><b>MM 4.7.3</b> Design level geotechnical investigations shall be performed for each planned facility or structure. Site soils shall be sampled and laboratory tested during design level to determine the expansion potential, as part of the geotechnical and soil engineering study. The recommendations of the study shall be incorporated into plans. Mitigation may include, but is not limited to the following measures:</p> <ul style="list-style-type: none"> <li>• Expansive soils can be excavated and replaced with non-expansive materials. The required depth of excavation shall be specified by a registered civil engineer based on actual soil conditions;</li> <li>• Expansive soils may be treated in place by mixing them with lime. Lime-treatment alters the chemical composition of the</li> </ul>	

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**1.0 EXECUTIVE SUMMARY**

**TABLE 1-1  
EXECUTIVE SUMMARY TABLE**

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.7.4</b> Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a <b>significant</b> impact.</p>		<p>expansive clay minerals such that the soil becomes non-expansive; and/or,                      • Implement alternative engineering practices considered appropriate by the City of Tracy Department of Development and Engineering Services to mitigate expansive soils conditions.   <i>Timing/Implementation: Prior to grading activities.</i>  <i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services</i></p>	
		<p><b>MM 4.7.4</b> Prior to grading activities, an erosion control plan which indicates proper control of siltation, sedimentation and other pollutants through the use of Best Management Practices (BMPs) shall be prepared and submitted to City of Tracy Department of Development and Engineering Services. The plan shall be incorporated into the project improvement plans and construction contracts. BMPs may include, but are not limited to, the following:                      a) Grading operations shall be targeted for the dry months of the year. If project construction occurs during rainy weather, sediment traps, barriers, covers or other methods approved by the City shall be used to reduce erosion.                      b) Excavated materials shall not be deposited or stored where the material could be washed away by stormwater runoff.</p>	

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EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>4.8 Biological Resources</b>  <b>Impact 4.8.1</b>                      Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered <b>potentially significant</b></p>	PS	<p><b>Timing/Implementation:</b> <i>Prior to grading activities.</i>  <b>Enforcement/Monitoring:</b> <i>City of Tracy Department of Development and Engineering Services</i></p> <p><b>MM4.8.1a</b>                      In order to avoid disturbance of remaining habitat for pond turtle, the location of equipment staging areas for all microtunnelling activities shall be situated within areas that are already paved, tilled, or otherwise disturbed.  <b>Timing/Implementation:</b> <i>Prior to construction activities.</i>  <b>Enforcement/Monitoring:</b> <i>City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game.</i></p> <p><b>MM4.8.1b</b>                      A focused survey for northwestern pond turtle shall be conducted by a qualified biologist prior to the onset of construction activities to determine presence or absence of these species. The surveys shall include all staging areas for microtunnelling activities and areas along aquatic habitats that will be modified during construction. If construction is planned after April 1<sup>st</sup>, this survey should include looking for turtle nests within the construction area. If turtles are found within the proposed construction area, the individuals should be moved out of the construction site under consultation with CDFG. A qualified biological monitor shall be present during construction activities to ensure no turtles are harmed during construction.</p>	LS

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1.0 EXECUTIVE SUMMARY

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Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.8.2</b> Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered <b>potentially significant</b>.</p>	<p>PS</p>	<p><b>Timing/Implementation:</b> <i>Prior to construction activities. Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game.</i></p> <p><b>MM4.8.1c</b> If possible, construction should be avoided when adults and hatchlings are overwintering (October-February), due to the likelihood of turtle adults and juveniles being present in upland habitats. If upland construction activities are scheduled in winter, a qualified biological monitor shall be present during construction activities.</p> <p><b>Timing/Implementation:</b> <i>Prior to construction activities. Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game.</i></p>	<p>LS</p>
<p><b>Impact 4.8.2</b> Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered <b>potentially significant</b>.</p>	<p>PS</p>	<p><b>MM 4.8.2</b> If construction is proposed during breeding season (February-August), a focused survey for migratory bird nests shall be conducted within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests on the site. If active nests are found, the California Department of Fish and Game shall be notified and, no construction activities shall take place within 500 feet of the nest until the young have fledged as well as other mitigation measures deemed necessary by the California Department of Fish and Game. If no active nests are</p>	<p>LS</p>

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1.0 EXECUTIVE SUMMARY

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Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.8.3</b> Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered <b>potentially significant</b>.</p>	<p>PS</p>	<p>found during the focused survey, no further mitigation will be required. <i>Timing/Implementation:</i> Prior to construction activities. <i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game</p> <p><b>MM 4.8.3a</b> If construction is proposed during the breeding season (February-August), a focused survey for burrowing owls shall be conducted in accordance with CDFG protocol within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests. If no active nests are found, no further mitigation is required. <i>Timing/Implementation:</i> Prior to construction activities. <i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game</p> <p><b>MM 4.8.3b</b> If active nests are found, consultation with California Department of Fish and Game shall be required to determine an appropriate level of avoidance and/ or mitigation. At a minimum, occupied burrows shall not be disturbed during the nesting season (February 1 through August 21) unless a qualified biologist approved by California Department of Fish and Game verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are</p>	<p>LS</p>

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Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.8.4</b> Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a <b>potentially significant</b> impact.</p>	PS	<p>foraging independently and are capable of independent survival. No construction may take place within 500 feet of active burrows and any burrows to be removed shall be removed during the non-breeding season. Mitigation measures that may be required include preservation in perpetuity of occupied burrows along with a minimum of 6.5 acres of adjacent foraging habitat, or relocation to another suitable preservation area and creation of new burrows and foraging habitat within the preservation area.</p> <p><i>Timing/Implementation:</i> Prior to construction activities. <i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game</p>	LS
		<p><b>MM 4.8.4a</b> A Fish Rescue Plan shall be prepared that details measures to avoid take of fish during construction of the coffer dam and pumping of water out of the coffer dam back into Old River. To ensure compliance and implementation of the plan, a fisheries biologist shall be present during construction and pumping (dewatering) activities.</p> <p><i>Timing/Implementation:</i> Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.</p> <p><i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S.</p>	

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EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p><b>MM 4.8.4b</b> Section 7 consultation with the NMFS and USFWS shall be required in conjunction with Corps Section 10 Rivers and Harbors act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to listed and special-status fish species. Consultation with CDFG would also be required to comply with the California Endangered Species Act. As part of the consultation process, a biological assessment shall be prepared by a fisheries biologist. The biological assessment shall evaluate final design of the coffer dam and clarifying method for water returned into Old River and in-river construction activity. A Mitigation Plan shall be prepared that includes measures to avoid or mitigate short-term construction-related impacts and mitigation measures necessary to address potential long-term thermal impacts to fish species that could occur as a result of this project are discussed in Section 4.6.1 (see Mitigation Measure 4.6.2). At a minimum, the following mitigation measures shall be incorporated into the mitigation plan:</p> <ul style="list-style-type: none"> <li>• Turbidity and suspended sediment levels in water returned to Old River shall not exceed more than 10% above ambient levels in Old River.</li> <li>• Prior to any construction activities within Old River, silt curtains shall be put in place around the work area.</li> <li>• Construction outside of the coffer dam shall occur between June 1 and September 30 (or period requested by the NMFS) to avoid the seasonal period in which juvenile or adult</li> </ul>	

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Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.8.5</b> Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered <b>potentially significant</b>.</p>	<p>PS</p>	<p>migrating salmonids are present in Old River and the lower San Joaquin River. Seasonal periods (fish windows) and other constraints on dredging and construction activity within the Old River channel will be subject to Section 7 consultation with NMFS and USFWS.</p> <ul style="list-style-type: none"> <li>Requirements and limits on construction and operational impacts (e.g., including specific discharge temperature limits) required to protect listed fish species may be contained in a Biological Opinion issued under Section 7 of the Endangered Species Act, as conditions of the Corps permit, and/or as conditions imposed under the NPDES permit issued by the Regional Water Quality Control Board.</li> </ul> <p><i>Timing/Implementation: Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.</i></p> <p><i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game</i></p>	<p>LS</p>
<p><b>MM4.8.5a</b> A jurisdictional delineation shall be conducted for the project area. The Corps shall be consulted to verify agreement with the results of the determination.</p> <p><i>Timing/Implementation: Prior to the issuance of permits for any work within Old River. The fish rescue</i></p>	<p>PS</p>	<p>Requirements and limits on construction and operational impacts (e.g., including specific discharge temperature limits) required to protect listed fish species may be contained in a Biological Opinion issued under Section 7 of the Endangered Species Act, as conditions of the Corps permit, and/or as conditions imposed under the NPDES permit issued by the Regional Water Quality Control Board.</p> <p><i>Timing/Implementation: Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.</i></p> <p><i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game</i></p>	<p>LS</p>

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TABLE 1-1  
EXECUTIVE SUMMARY TABLE

Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
		<p><i>will be performed during coffer dam dewatering.</i></p> <p><i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, U.S. Army Corps of Engineers; National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Game and the Regional Water Quality Control Board.</i></p> <p><b>MM4.8.5b</b></p> <p>If there will be discharge into jurisdictional waters of the U.S., the appropriate Section 10 and 404 permit needs to be obtained for proposed work within the waters. Construction work within Old River and placement of the new pipeline and diffuser will require permits under both CWA Section 404 and Rivers and Harbors Act Section 10. Water Quality certification or waiver also will be required for this work. Because Old River provides habitat for special-status fish species, it will be necessary to determine appropriate work windows and construction measures to avoid impacts to special-status fish as discussed in more detail in the section on special-status fish species (See MM 4.8.3b).</p> <p><i>Timing/Implementation: Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.</i></p> <p><i>Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, U.S. Army Corps of Engineers; National Marine Fisheries</i></p>	

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Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.8.6</b> From a conservative (ie. worst case standpoint), it may be projected that cumulative future impacts will be <b>potentially significant</b> for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.</p>	<p>PS</p>	<p><b>MM 4.8.5c</b> Prior to any work within Old River, the CDFG should be contacted to determine whether or not a Streambed Alteration Agreement is required, pursuant to Section 1600 of the California Fish and Game Code. If required, the project applicant shall coordinate with CDFG in developing appropriate mitigation, and shall abide by the conditions of any executed permits.</p> <p><i>Timing/Implementation:</i> Prior to the issuance of permits for any work within Old River.</p> <p><i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game.</p>	<p>SU</p>
<p><b>Historic and Cultural Resources</b> <b>Impact 4.9.1</b> Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the</p>	<p>PS</p>	<p><b>MM 4.9.1a</b> If any prehistoric or historic artifacts, or other indications of archaeological resources are found once the project is underway, all work in the immediate vicinity must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications</p>	<p>SU</p>

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Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p>project area of potential effect. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a <b>significant</b> impact.</p>		<p>Standards in prehistoric or historical archaeology, as appropriate, shall be consulted to evaluate the finds and recommend appropriate mitigation measures.</p> <p><i>Timing/Implementation:</i> Included in construction contracts and implemented during construction activities.</p> <p><i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services.</p> <p><b>MM 4.9.1b</b></p> <p>If human remains are discovered, all work must stop in the immediate vicinity of the find, and the County Coroner must be notified, according to Section 7050.5 of the California Health and Safety Code. If the remains are Native American, the coroner will notify the Native American Heritage Commission, which in turn will inform a most likely descendant. The descendant will then recommend to the landowner appropriate disposition of the remains and any grave goods.</p> <p><i>Timing/Implementation:</i> Included in construction contracts, and implemented during construction activities.</p> <p><i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services.</p>	
<p><b>4.10 Public Services and Utilities</b> <b>Impact 4.10.1</b> Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage</p>	PS	<p><b>MM 4.10.1a</b> The City of Tracy will consult with PG&amp;E, Pacific Bell, and any other known service providers in the area to determine whether</p>	LS

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**1.0 EXECUTIVE SUMMARY**

**TABLE I-1  
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<p>existing infrastructure. This would be considered a potentially significant impact.</p>		<p>construction will impact utilities or occur in proximity to known infrastructure. WWTP development plans shall be reviewed and the recommendations of these agencies shall be incorporated into final development plans.</p> <p><i>Timing/Implementation:</i> During the planning stage of the project.</p> <p><i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services.</p> <p><b>MM 4.10.1b</b> The proposed outfall pipeline alignment shall be surveyed by a firm specializing in locating buried infrastructure. This task shall include contacting appropriate utility agencies and companies, reviewing maps, etc.</p> <p><i>Timing/Implementation:</i> During the design stage of the project.</p> <p><i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services</p> <p><b>MM 4.10.1c</b> The cost of any repair or relocation of affected infrastructure that results from construction activities will be assumed by the City of Tracy if the utility has prior title to the property.</p> <p><i>Timing/Implementation:</i> Prior to approval of final improvement plans.</p> <p><i>Enforcement/Monitoring:</i> City of Tracy Department of Development and Engineering Services.</p>	

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Impact	Level of Significance without Mitigation	Mitigation Measure	Resulting Level of Significance
<p><b>Impact 4.10.2</b> Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a <b>potentially significant</b> impact.</p>	<p>PS</p>	<p><b>MM 4.10.2</b> The City of Tracy Fire Department shall review plans for the WWTP facilities to determine the if special fire services or facilities are required. These facilities may include special hazardous material equipment, temporary and/or permanent water tanks, and fire breaks. The recommendations of the Fire Department shall be incorporated into project improvement plans.  <i>Timing/Implementation:</i> Prior to approval of project improvement plans.  <i>Enforcement/Monitoring:</i> City of Tracy Fire Department and Department of Development and Engineering.</p>	<p>LS</p>

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## 2.0 INTRODUCTION

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This section summarizes the purpose of the Environmental Impact Report (EIR) for the City of Tracy Wastewater Treatment Plant (WWTP) Expansion project, hereafter referred to as the "project." Environmental procedures to be followed according to state law, the intended uses of the EIR, the project's relationship to the City of Tracy's Urban Management Plan/General Plan (UMP), the scope and organization of the EIR, impact terminology, and definitions of commonly used terms used throughout this EIR are addressed.

### 2.1 BACKGROUND AND PURPOSE

This EIR has been prepared in conformance with the California Environmental Quality Act (CEQA) to evaluate the environmental effects of implementing the proposed City of Tracy WWTP expansion project. The EIR is intended to evaluate the impacts of the proposed project at a project-level of detail, in accordance with Section 15161 of the CEQA Guidelines.

The City of Tracy (City), acting as the Lead Agency, has prepared this Draft EIR to provide the public and responsible and trustee agencies with information about the potential environmental effects of the project's components. As described in CEQA Guidelines Section 15121(a), an EIR is a public information document that assesses potential environmental effects of the proposed project, as well as identifies mitigation measures and alternatives to the project that could reduce or avoid adverse environmental impacts. Public agencies are charged with the duty of considering and mitigating environmental impacts of proposed development where feasible, and have an obligation to balance a variety of public objectives, including economic, environmental, and social factors.

CEQA requires the preparation of an EIR prior to approving any "project" that may have a significant effect on the environment. For the purposes of CEQA, the term "project" refers to the whole of an action, which has a potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment, per CEQA Guidelines Section 15378(a). With respect to the proposed WWTP expansion, the City has determined these series of actions and plans constitute a "project" within the definition of Public Resources Code Section 21065, which has the potential for resulting in significant environmental effects.

### 2.2 TYPE OF DOCUMENT

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. As noted above, this EIR has been prepared as a Project EIR pursuant to CEQA Guidelines Section 15161. This type of analysis focuses primarily on the changes in the environment that would occur as a result of project implementation, and examines all phases of these particular project components (i.e., planning, construction, and operation).

### 2.3 INTENDED USES OF THE EIR

This EIR has been prepared to provide specific project level analysis on impacts associated with phased expansion of the WWTP capacity from 9.0 million gallons per day (MGD) average dry weather flow (ADWF) to 16.0 MGD ADWF. (Note: All flows are ADWF unless otherwise specified). Ultimately, the City will use this EIR to evaluate the proposed project's environmental impacts. The EIR can also be used to modify, approve, or deny approval of a

## 2.0 INTRODUCTION

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project component. The following permits would be required in association with the proposed project as well:

*U.S. Army Corps of Engineers:* Approval of permit for the placement of fill into jurisdictional waters of the U.S. for the new Old River outfall facility, pursuant to Section 404 of the Clean Water Act.

*California Department of Fish and Game:* Approval of a Streambed Alteration Agreement with the CDFG for the new Old River outfall facility, pursuant to Section 1600 of the Fish and Game Code.

*California State Water Resources Control Board:* Refer to the Regional Water Quality Control Board.

*Caltrans:* Permit for jack and bore and encroachment.

*City of Tracy:* Actions that would be required from the City Council and/or City staff may include, but are not limited to, the following:

- Approval of the expansion of the WWTP;
- Approval of engineering details and plans associated with the expansion, outfall diffuser and outfall pipeline;
- Easements and right of way acquisitions.

*Pescadero Reclamation District No. 2058:* Approval of plans and specifications that may affect the Districts reclamation, irrigation or levee systems.

*Regional Water Quality Control Board, Central Valley Region (RWQCB):* Approval of new or modified National Pollutant Discharge Elimination System (NPDES) permit associated with expanded effluent discharges into the Old River. A Water Certification or Waiver from the RWQCB may also be required for the new Old River outfall, pursuant to Section 401 of the Clean Water Act. In addition to the operation permits, the project would also require approval of National or Individual Pollutant Discharge Elimination System permits associated with construction activities. The City has been meeting with the RWQCB throughout the planning stages of the project to ensure compliance with all necessary requirements.

*San Joaquin Valley Air Pollution Control District:* Approval of an "Authority to Construct" permit for the diesel generators for backup power for the pumps proposed for the system.

*San Joaquin County Community Development Department:* Permits for construction activities occurring in roadways located in unincorporated County lands would require permits from the San Joaquin County Community Development Department.

*San Joaquin County Department of Public Health Services:* Approval of permits and plans associated with storage and handling of hazardous materials for operation of the expanded WWTP.

*South Delta Water Agency:* Coordination on water quality issues.

#### **2.4 RELATIONSHIP TO THE URBAN MANAGEMENT PLAN EIR AND OTHER ENVIRONMENTAL DOCUMENTS**

The City of Tracy adopted and certified the UMP and associated EIR in July 1993 (State Clearinghouse No. 19092060). The UMP was based on input from the Tracy UMP's Steering Committee, the public and various agencies. Integral to the UMP is an anticipated buildout of the Tracy service area, with projected future population to reach approximately 162,000 residents. The corresponding wastewater demand for this population is anticipated at approximately 32.5 million gallons per day (MGD).

The City of Tracy Wastewater Master Plan (City of Tracy, 1994) identifies several projects intended to provide adequate wastewater treatment capabilities sufficient to treat wastewater flows generated by existing and planned future populations within the City of Tracy service area. The proposed WWTP expansion from 9 MGD to 16 MGD is only one component for accommodating wastewater service for long-term planned development. Additional wastewater projects expected to serve the City's UMP buildout include the planned Tracy Hills Permanent Wastewater Reclamation Facility (5.2 MGD), potential further expansion of the City's Wastewater Treatment Plant beyond 16 MGD, and other satellite treatment plants.

The UMP EIR analyzed the environmental impacts associated with buildout of the Tracy Planning Area, including future wastewater requirements specified in the Wastewater Master Plan. Where feasible, the City adopted mitigation measures to reduce impacts to a level of insignificance. In addition, significant and unavoidable impacts identified in the UMP EIR were addressed by the City in adopted findings and statement of overriding considerations (Resolution No. 93-226).

Public Resources Code Section 21083.3 provides for streamlined review of projects that are consistent with applicable general plans. Specifically, Section 21083.3(a) limits the review of such projects to environmental effects that are "peculiar to the parcel or to the project and which were not addressed as significant effects in the prior EIR, or which new information shows will be more significant than described in the prior EIR." Consistent with Public Resources Code Section 21083.3, CEQA Guidelines Section 15152, 15168(d) and 15183 provide for "tiering" of the environmental analysis of a previously prepared EIR for subsequent projects that are consistent with the previous project (e.g. general or community plan) or are part of a larger program. To that end, the WWTP expansion project represents an incremental wastewater flow capacity increase consistent with wastewater needs identified to support buildout of the Tracy service area in the UMP and the Wastewater Master Plan (City of Tracy, 1994).

This EIR provides an analysis of environmental effects specifically associated with the proposed project, as well as an evaluation of project impacts with regards to the environmental analysis

## **2.0 INTRODUCTION**

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provided in the UMP EIR where appropriate. Consistent with CEQA Guidelines Section 15183, this EIR addresses environmental effects that are peculiar to the project and utilizes mitigation measures based on adopted City development policies and standards, where applicable, to mitigate anticipated impacts. Pursuant to CEQA Guidelines Sections 15153 (Use of an EIR From an Earlier Project) and 15168, this EIR will provide environmental analyses on issues specific to the project.

The UMP, UMP EIR, and the Wastewater Master Plan are available for public review at the City of Tracy Development and Engineering Services Department.

### **2.5 ORGANIZATION AND SCOPE**

Sections 15122 through 15132 of the CEQA Guidelines identify the content requirements for Draft and Final EIRs. An EIR must include a description of the environmental setting, an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. The environmental issues addressed in the Draft EIR were established through review of environmental data developed for the project area and surrounding region and public agency responses to the NOP, included as **Appendix A** of this report. Additional comments were received during public scoping sessions on November 10, 1999 and August 16, 2000. Based upon existing information, comments received, and agency consultation, the City determined the scope for this EIR.

Accordingly, this Draft EIR is organized in the following manner:

#### **SECTION 1.0 - EXECUTIVE SUMMARY**

This section summarizes the characteristics of the proposed project, project alternatives, and provides a concise summary matrix of the project's environmental impacts and associated mitigation measures.

#### **SECTION 2.0 - INTRODUCTION**

Section 2.0 provides an introduction and overview describing the intended use of this EIR and the review and certification process.

#### **SECTION 3.0 - PROJECT DESCRIPTION**

This section provides a detailed description of the proposed project, including intended objectives, background information, and physical and technical characteristics. The project description also includes a description of the alternatives to be evaluated.

#### **SECTION 4.0 - ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES**

Section 4.0 contains an analysis of environmental topic areas as identified below. Each subsection contains a description of the existing setting of the project area, identifies project-related impacts, and recommends mitigation measures.

The following major environmental topics shall be addressed in this Section:

- **Land Use:** Addresses the land use impacts associated with implementation of the project including project compatibility with surrounding land uses, consistency with City, County, and other relevant land use goals and provisions.
- **Human Health/Risk of Upset:** Assesses the likelihood for the presence of hazardous materials or conditions for each project component, and their potential impact upon human health.
- **Transportation and Circulation:** Addresses the impacts on the local and regional road system during the construction and operation activities of the expanded WWTP.
- **Noise:** Examines noise impacts during construction and operation of the WWTP, and the impact of noise generation on existing and planned land uses.
- **Air Quality:** Discusses the local and regional air quality impacts associated with project implementation. Also addressed is the potential for odor issues as a result of WWTP operation.
- **Surface Hydrology, Groundwater, and Water Quality:** Examines the impacts of the project on local hydrological conditions, including drainage areas, groundwater, surface water quality, and changes in drainage flow rates.
- **Geology and Soils:** Addresses the potential impacts the project components may have on soils, soil suitability for development, and seismic hazards.
- **Biological and Natural Resources:** The project impacts on habitat, vegetation, and wildlife are addressed, including the impacts on listed, proposed, and candidate threatened and endangered species.
- **Historic and Cultural Resources:** Addresses the potential impacts on historic and archaeological resources within the project site.
- **Public Services and Utilities:** Discusses the impacts the project components will have on utilities, fire protection, and other services.

#### SECTION 5.0 - CUMULATIVE IMPACTS SUMMARY

This section discusses the cumulative impacts associated with the proposed project. As required by CEQA Section 15130, an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable.

#### SECTION 6.0 – ALTERNATIVES TO THE PROJECT

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project, which could feasibly attain the basic objectives of the project and

## 2.0 INTRODUCTION

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avoid and/or lessen the environmental effects of the project. This alternatives analysis provides a comparative analysis between the alternatives for each project component, as detailed below. In addition, CEQA Guidelines Section 15126(e) requires that the EIR consider the No Project alternative, which is also detailed below:

### **No Project Alternative**

This alternative considers the environmental effects of not approving any component of the proposed project: no expansion of the WWTP would occur, there would be no increase in wastewater flow capacity, nor any upgrade to existing equipment.

### **Facility Design Alternatives**

The facility design alternatives considered for analysis in the EIR are twofold: those dealing with the diffuser location (i.e. disposal alternatives) and those dealing with treatment options.

#### **Disposal Alternatives**

*Co-location Alternative* - New pipeline and outfall diffuser adjacent to existing outfall on Old River

*Dougherty Cut Alternative* - New pipeline and outfall diffuser at Dougherty Cut

*Old River South Alternative* - New outfall diffuser at Old River southwest of existing outfall.

*Sugar Cut Alternative* - New pipeline and outfall diffuser at Sugar Cut.

*Tom Paine Slough Alternative* - New pipeline and outfall diffuser at Tom Paine Slough.

*Maximum Summertime Reuse of Recycled Water (no seasonal storage)* - Piping water to customers for reclamation and reuse purposes in Summer months and discharging to Old River in the Fall, Winter and Spring.

*Maximum Reuse of Recycled Water (with seasonal storage)* - Piping water to customers for reclamation and reuse purposes in the Summer months and storing flows in the Fall, Winter and Spring (i.e. no discharge).

#### **Treatment Alternatives**

*Peak Hour Dry Weather Filtration for Tertiary Treatment (23 MGD)* - Provides filtration for peak hour dry-weather flow. During periods of peak-hour wet weather flow, this alternative would provide partial filtration (i.e. it would accommodate only 23 MGD instead of 30 MGD).

*Advanced Treatment* - Post-tertiary treatment to remove trace organics, metals and dissolved materials (e.g. salts). Filtered effluent would be put through a series of membranes under pressure to remove residual materials prior to discharge.

## SECTION 7.0 - LONG-TERM IMPLICATIONS OF THE PROJECT

This section contains required discussions and analysis of various topical issues mandated by CEQA, including: significant environmental effects that cannot be avoided if the project is implemented, growth inducing impacts and secondary impacts.

## SECTION 8.0 - REPORT PREPARERS AND REFERENCES

The purpose of this section is to provide a list of all authors and agencies that assisted in the preparation of the report by name, title, and company or agency affiliation. Section 8.0 also itemizes supporting and reference data used in the preparation of the Draft EIR and lists all government agencies, organizations, and other individuals consulted in preparing the Draft EIR.

## APPENDICES

This section includes all notices and other procedural documents pertinent to the EIR, as well as all technical reports prepared to support the analysis.

### 2.6 ASSUMPTIONS

The following assumptions were used in preparing the analysis contained in this EIR:

- Projected build-out wastewater flows of 16 MGD are based on planned development in the UMP that is located within the expanded city limits except for the Tracy Hills Community Area.
- The new wastewater discharge permit to be obtained from the RWQCB in 2001 will require tertiary treatment and nitrification.
- Future peaking factors (dry weather diurnal, wet weather peaking) would be consistent with existing peaking factors.
- Future loading conditions (e.g. nitrogen, TSS, BDO5) in the influent wastewater would be consistent with existing influent concentrations. No new large industrial customers with markedly different wastewater strengths are expected.
- The target dilution for the diffuse design and outfall location is 20:1.

### 2.7 ENVIRONMENTAL REVIEW PROCESS

The review and certification process for the EIR will involve the following procedural steps:

#### NOTICE OF PREPARATION AND INITIAL STUDY

In accordance with Section 15082 of the CEQA Guidelines, the City of Tracy prepared a Notice of Preparation (NOP) of an EIR on January 12, 2000. The City of Tracy was identified as the lead agency for the proposed project. The NOP is presented in **Appendix A**. This notice was circulated to the public, local, state, and federal agencies, and other interested parties to solicit comments on the proposed project. Concerns raised during public meetings, as well as in

## 2.0 INTRODUCTION

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response to the NOP, were considered during preparation of the Draft EIR. NOP comment letters are presented in **Appendix A**.

### DRAFT EIR

This document constitutes the Draft EIR (DEIR). The DEIR contains a description of the project, description of the environmental setting, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. Upon completion of the DEIR, the City will file the Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161). Concurrent with the NOC, a Notice of Availability of the DEIR shall be mailed to individuals and organizations who have previously requested such notice in writing.

### PUBLIC NOTICE/PUBLIC REVIEW

Concurrent with the NOC, the City will provide public Notice of the Availability (NOA) of the DEIR for public review, and invite comment from the general public, agencies, organizations, and other interested parties. The public review and comment period should be no less than 30 days or longer than 90 days. The review period in this case is expected to be 45 days. Public comment on the DEIR will be accepted both in written form and orally at public hearings. Although no public hearings on the EIR are required by CEQA, the City expects to hold a public review meeting during the 45-day review period. Notice of the time and location of the hearing will be published prior to the hearing. All comments or questions regarding the DEIR should be addressed to:

Steve Bayley, Deputy Director of Public Works  
City of Tracy  
Public Works Department  
520 Tracy Boulevard  
Tracy, California 95376  
Phone: (209) 831-4420

### RESPONSE TO COMMENTS/FINAL EIR

Following the public review period, a Final EIR (FEIR) will be prepared. The FEIR will respond to written comments received during the public review period and to oral comments made at any public hearing. The City Council will review and consider the FEIR prior to their decision to approve, revise, or reject the proposed project.

### CERTIFICATION OF THE EIR

If the City finds that the FEIR is "adequate and complete", the City may certify the FEIR. The rule of adequacy generally holds that the EIR can be certified if: 1) it shows a good faith effort at full disclosure of environmental information, and 2) provides sufficient analysis to allow decisions to be made regarding the project in contemplation of environmental considerations.

PROJECT CONSIDERATION

Upon review and consideration of the FEIR, the City may act upon the project. A decision to approve the project would be accompanied by written Findings in accordance with CEQA Guidelines Section 15091 and, if applicable, Section 15093. The City would also adopt a Mitigation Monitoring Program, as described below, for mitigation measures that have been incorporated into or imposed upon the project to reduce or avoid significant effects on the environment. This Mitigation Monitoring Program will be designed to ensure that these measures are carried out during project implementation.

MITIGATION MONITORING

CEQA Section 21081.6(a) requires lead agencies to adopt a reporting and mitigation monitoring program to describe measures that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The specific "reporting or monitoring" program required by CEQA is not required to be included in the EIR. Throughout the EIR, however, mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by the City as conditions for approval of the project will be included in a Mitigation Monitoring and Reporting Program to verify compliance.

2.8 IMPACT TERMINOLOGY

This Draft EIR uses the following terminology to describe environmental effects of the proposed project:

- **Standards of Significance:** A set of criteria used by the lead agency to determine at what level or "threshold" an impact would be considered significant. Significance criteria used in this EIR include the CEQA Guidelines; factual or scientific information; regulatory performance standards of local, state, and federal agencies; and, City goals, objectives, and policies.
- **Less Than Significant Impact:** A less than significant impact would cause no substantial change in the environment (no mitigation required).
- **Significant Impact:** A significant impact would cause (or would potentially cause) a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects using specified standards of significance. Mitigation measures and/or project alternatives are identified to reduce project effects to the environment.
- **Significant Unavoidable Impact:** A significant and unavoidable impact would result in a substantial change in the environment that cannot be avoided or mitigated to a less than significant level if the project is implemented.

## 2.0 INTRODUCTION

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- **Cumulative Significant Impact:** A cumulative significant impact would result in a new substantial change in the environment from effects of the project when evaluated in the context of reasonably foreseeable development in the surrounding area.

### 2.9 DEFINITIONS OF COMMONLY USED TERMS

**Activated Biofilters** – serve as first-stage biological process designed to treat high-strength industrial wastewater flow and to buffer the secondary treatment processes from variations in BOD loading and occasional shock loading.

**ADWF** – Average Dry Weather Flow – the maximum flow based on a 30-day running average valued during the annual dry-weather period from May to October. The ADWF represents the baseline average sanitary flows from the community and, according to the WWTP's NPDES permit, is used to define the plant's permitted capacity to discharge into Old River.

**Aeration Basins** – provide the second stage of biological treatment.

**Anaerobic Digesters** – stabilize organic materials and reduce the volume of sludge.

**BOD** – biological oxygen demand.

**Chlorine Contact Basins** – provide the contact time necessary for the chlorine solution to inactivate pathogenic microorganisms.

**City Engineer** – the City Engineer of the City of Tracy.

**City Regulations** – all written laws, rules, and policies established by the City, including those set forth in the City of Tracy General Plan (also known as the Urban Management Plan or UMP), the Tracy Municipal Code, ordinances, resolutions, policies, procedures, and the City's Design Documents (including the Standard Plans, Standard Specifications, Design Standards, and relevant Public Facility Master Plans).

**CDFG** – the California Department of Fish and Game.

**CPE** – combined primary effluent, a combination of IPE and DPE.

**COG** – the San Joaquin Council of Governments.

**DAFTs** – Dissolved Air Flootation Thickeners – concentrate waste activated sludge solids by passing them through a flow-through reactor as compressed air is injected along the floor of the tank.

**DEIR** – Draft Environmental Impact Report.

**Diffuser** – Ten 8-inch diameter diffuser pipes that discharge just above the bottom of the Old River.

**DPE** – domestic primary effluent.

**Effluent Outfall** – An existing 33-inch diameter outfall pipe that conveys treated effluent approximately 3.5 miles north of the plant where it is discharged through a submerged diffuser in the Old River.

**Effluent Pump Station** – pumps treated effluent 3.5 miles north to the outfall at Old River.

**Emergency Storage Pond** – provides temporary storage of treated wastewater not meeting discharge standards and occasional overflows from the aerated holding ponds.

**EIR** – Environmental Impact Report.

**FEIR** – Final Environmental Impact Report.

**HCP** – Habitat Conservation Plan.

**IPE** – industrial primary effluent.

**NTU** – Nephelometric Turbidity Unit

**PHWWF** – Peak Hourly Wet Weather Flow – PHWWF is the maximum instantaneous influent flow that is anticipated to arrive at the WWTP. These flows are expected to occur during the wet-weather season, from November to April, and have in addition to the baseline service area wastewater flow, an extraneous water component resulting from inflow and infiltration (I/I) that enter the sewer system.

**Pretreatment Lagoons (Ponds)** – aerated ponds that reduce the organic loading of wastewater prior to entering the WWTP.

**Project** – expansion and operation of the WWTP.

**RAS** – return activated sludge.

**RWQCB** - Regional Water Quality Control Board.

**Sand Drying Beds** – dewater digested sludge.

**Secondary Clarifiers** – separate mixed liquor microorganisms from stabilized wastewater.

## **2.0 INTRODUCTION**

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**TPA** – Tracy Planning Area.

**UMP** – City of Tracy Urban Management Plan/General Plan.

**USFWS** – United States Fish and Wildlife Service.

**WAS** – waste activated sludge.

**WWTP** – City of Tracy Wastewater Treatment Plant.

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## 3.0 PROJECT DESCRIPTION

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## 3.0 PROJECT DESCRIPTION

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The proposed City of Tracy Wastewater Treatment Plant (WWTP) Expansion project involves the addition of new plant facilities at the existing site to increase plant capacity from 9.0 million gallons per day (MGD) to 16.0 MGD average dry-weather flow (ADWF). (Note: All flows are ADWF unless specified otherwise). In addition, existing equipment would be upgraded in anticipation of more stringent federal and state effluent discharge requirements. The project includes construction of a new discharge pipeline and diffuser. The new pipeline would follow essentially the same route as the existing outfall pipeline. The new outfall diffuser would be located approximately 800 feet downstream of the existing outfall currently discharging into Old River. These improvements are required to accommodate planned population growth within the City of Tracy UMP area, but would not fully support anticipated UMP buildout wastewater requirements of 32.5 MGD. The project construction is proposed in four phases over a period of approximately 12 years. The project would be funded primarily by the City of Tracy, but may utilize State Revolving Fund (SRF) money as well. The analysis contained in this EIR is consistent with the State's CEQA guidelines for projects receiving SRF financing.

### 3.1 LOCAL AND REGIONAL SETTING

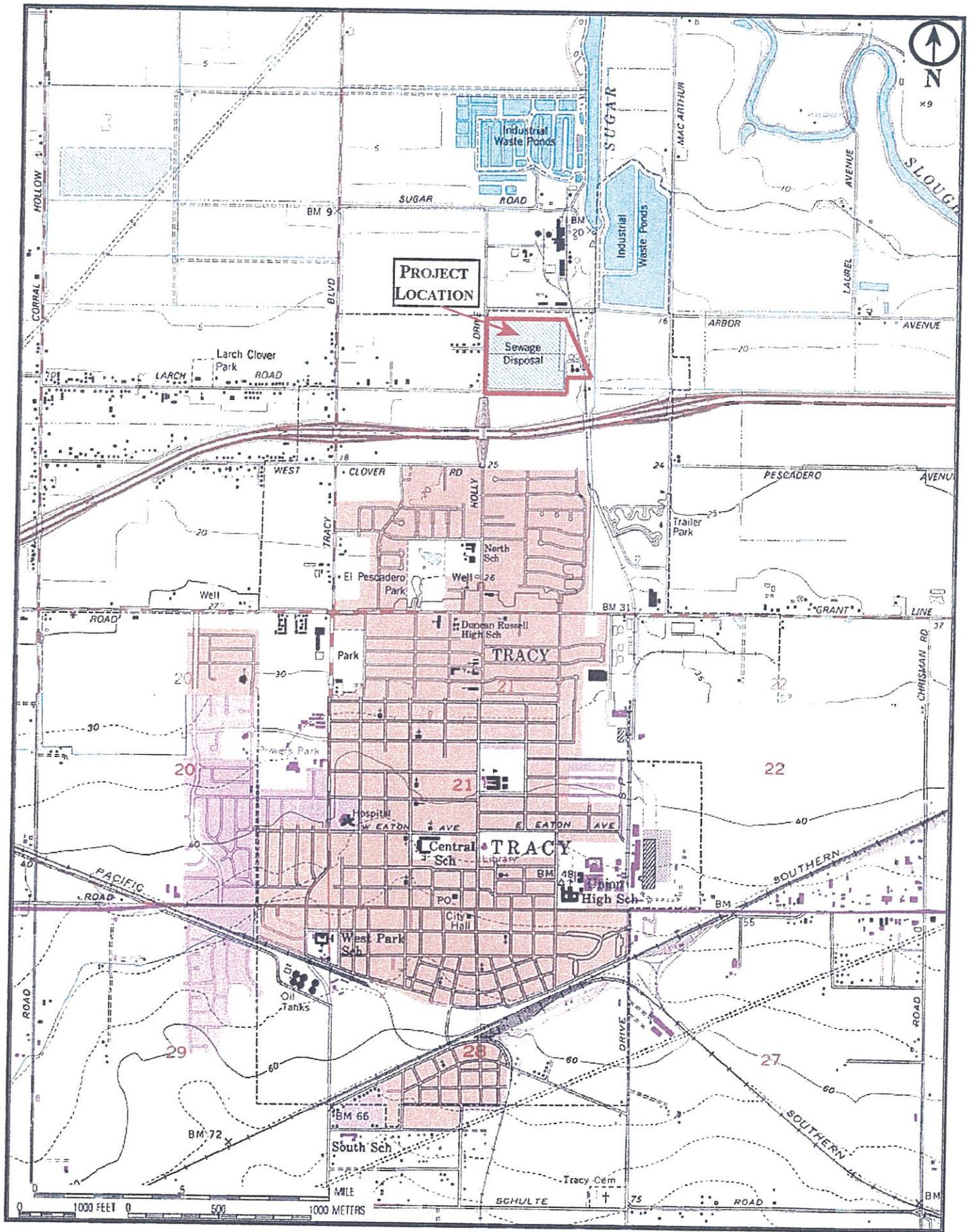
The project site is located within the northern portion of the City of Tracy (see **Figure 3-1**), on the corner of Larch Road and Holly Drive. The site is within City limits and provides wastewater collection, treatment, and disposal for residences, businesses, and industries in the Tracy area.

The land use designation for the proposed WWTP expansion area adjoining the current wastewater treatment facility is Public Facilities (PUB) as designated in the UMP (City of Tracy, 1993a). Surrounding land uses in the project area include industrial uses (the Holly Sugar refining facility and a scrap metal recycling operation) and agriculture.

### 3.2 PROJECT BACKGROUND

Since the construction of the WWTP in 1930, the facility has undergone three major periods of expansion. Original treatment at the plant consisted of minimal solids separation and biological treatment via a grit chamber, an Imhoff tank, and a trickling filter. In 1947, the plant was modified to expand on its primary, secondary, and solids treatment capability through the addition of primary and secondary clarifiers, a new trickling filter, and an anaerobic digester.

During the mid-1970s, the combination of continued population growth and the promulgation of new water pollution control standards by the U.S. Environmental Protection Agency (USEPA) required another plant expansion resulting in the improvement of numerous treatment facilities. Grit removal was improved through the addition of a new headworks facility. Secondary treatment was upgraded by adding biofilters, aeration basins, rectangular clarifiers, and chlorine contact tanks. Solids handling was improved through the addition of a sludge holding tank and a floatation thickener. A laboratory, utility building, and auxiliary generator building were also constructed.



The most recent improvements to the plant were constructed between 1985 and 1987. These upgrades included an improved solids handling facility, which increased the plant's design flow capacity from 5.5 to 9.0 MGD. The City is currently undertaking improvements that consist of the replacement of clarifier and pumping units as well as relocation of the laboratory facilities. These improvements will allow the plant to fully utilize its permitted capacity of 9.0 MGD. These improvements were documented in conformance with CEQA requirements in the *City of Tracy Wastewater Treatment Plant Phase 1A Improvement Initial Study and Draft Mitigated Negative Declaration* (CH2M Hill, 2000). **Figure 3-2** provides an overview of the existing plant facilities.

#### SERVICE AREA

The City of Tracy provides wastewater collection, treatment, and disposal for residences, businesses and industries within its service area. The City's wastewater service area is shown in **Figure 3-3**. An average of approximately 6.0 MGD of domestic wastewater is currently generated within the service area. Currently, Leprino Foods is the only significant wet industry discharging to the City, approximately 0.5 MGD of food process water. Prior to 1997, Heinz Foods discharged approximately 1.6 to 2.0 MGD of tomato wastewater to the WWTP during the summer months. However, the Heinz Foods plant is currently not in operation.

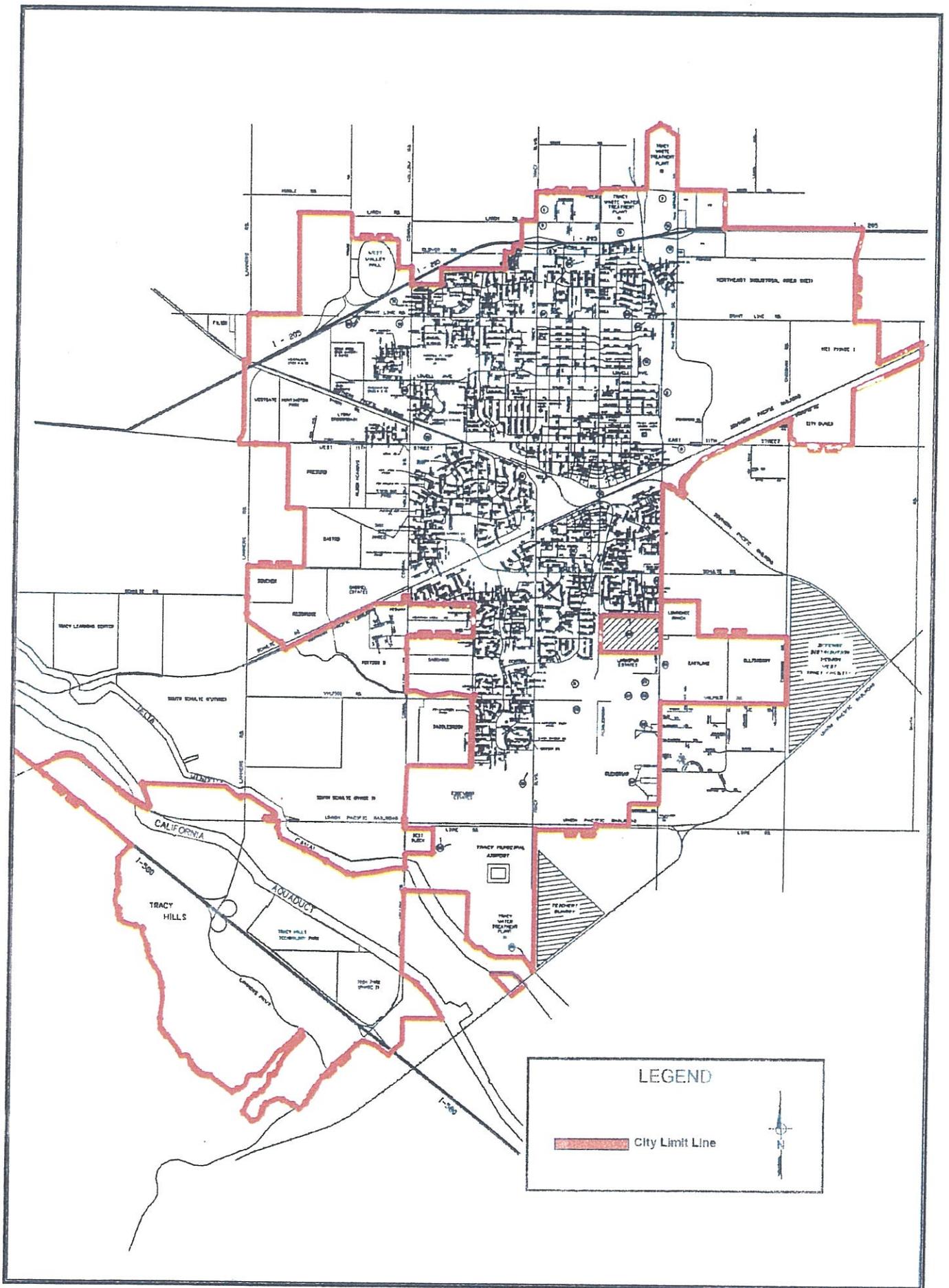
#### EXISTING WASTEWATER TREATMENT FACILITIES

The WWTP occupies approximately 104 acres including 10 acres of liquid/solids facilities, 11 acres of sludge drying beds, 60 acres of ponds, 14 acres of emergency ponds and 9 unused acres (CH2M Hill/Larry Walker Associates, 1994). The WWTP has two sets of facilities available to handle industrial (i.e. food processing) wastes: the industrial waste ponds and the industrial primary clarifiers. The industrial waste ponds occupy 60 acres on the northeast corner of the WWTP property north of Arbor Avenue and include aerated and non-aerated oxidation ponds. One 7-acre aerated pond is used to handle Leprino industrial (i.e. food processing) wastewater. The second 7-acre aerated pond is not in regular use, but would be available if the food processing waste stream increased. Three non-aerated ponds, totaling 39 acres could be used for additional food processing wastewater if needed. These ponds are kept in working condition by releasing wastewater periodically. Therefore, the total pond area available is 53 acres.

In addition to the waste ponds, the WWTP has two industrial primary clarifiers. The clarifiers are constructed of concrete and measure 126 feet long by 18 feet wide and are 13 feet deep. The clarifiers are equipped with collector mechanisms and have two sludge pumps and one scum pump that is used to handle skimmings and sludge collected from the bottom of the clarifiers. The clarifiers are not currently in use, but could be put into use if needed by additional industrial waste flows.

At the WWTP, the domestic wastewater from the City and wastewater from Leprino is sent through a series of sequential treatment processes to achieve the desired effluent quality, which is currently a secondary level of treatment. In 1999, the average influent flow to the WWTP was 6.5 MGD, of which approximately 6 MGD was domestic strength wastewater and approximately





### 3.0 PROJECT DESCRIPTION

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0.5 MGD was industrial-strength wastewater. Peak hour wet weather flow in 1999 was estimated at 15.0 MGD. A process flow diagram for the WWTP is provided in **Figure 3-4**.

As shown, the major unit processes are categorized into primary treatment, secondary treatment, effluent disposal, and solids handling. These unit processes are more fully described in **Table 3-1**. The purpose of primary treatment is to remove large objects, grit, and easily settleable solids. The process consists of mechanical and manually operated bar screens to remove debris and large objects in the wastewater and is followed by an aerated grit chamber that captures sand and grit materials which would otherwise damage downstream pumps. Readily settleable materials are removed at the primary clarifiers. Screenings and grit are hauled offsite to land disposal. After primary clarification, primary effluent is conveyed to secondary treatment which oxidizes organic material within the wastewater. The WWTP utilizes an activated biological filter (ABF) and an activated sludge system. In this process, microorganisms reduce the organic concentration of the wastewater by converting the organic material to additional microbial biomass. Once the organic concentration has been reduced, the biomass is settled out of the wastewater in secondary clarifiers.

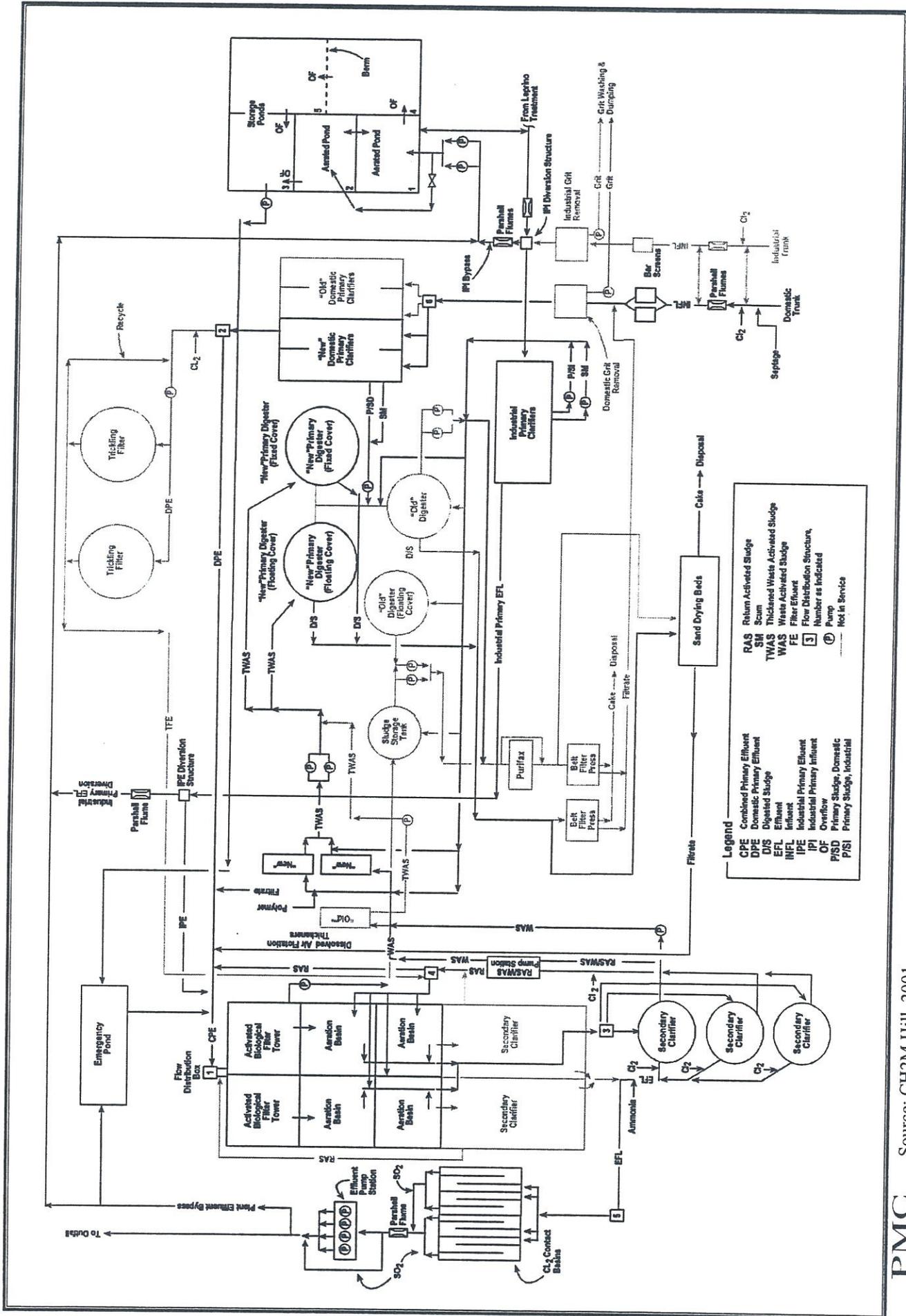
After secondary clarification, wastewater is disinfected using chlorine gas then dechlorinated with sulfur dioxide (SO<sub>2</sub>) to remove residual chlorine concentrations. The treated effluent is pumped 3.5 miles north of the WWTP and discharged through a submerged pipeline and diffuser into the Old River (see **Figure 3-5**). The existing diffuser employs ten 8-inch ports at 8-feet on center (**Figure 3-6**). All ports are horizontal and directed downstream towards the west. The port elevations are 11-feet NGVD (National Geodetic Vertical Datum of 1929, a tidal reference system). In addition, the plant also maintains an emergency storage pond with a 24 million gallon (mg) capacity for emergency flow diversion.

Solids collected from primary and secondary clarifiers are thickened and digested. The solids are first thickened using dissolved air flotation thickeners and then digested in anaerobic digesters. As a final step, the digested biosolids are transported to drying beds for dewatering. When the solids have been sufficiently dewatered, the biosolids are hauled off-site for land application near the Altamont Pass.

#### EXISTING DISCHARGE PERMIT REQUIREMENTS

Operation of the WWTP must currently comply with the effluent limitations mandated by its existing National Pollutant Discharge Elimination System (NPDES) permit (Number CA0079154). This permit, administered by the Central Valley Regional Water Quality Control Board (RWQCB), prescribes maximum allowable discharge rate, effluent quality requirements, discharge prohibitions, receiving water limitations, pretreatment program requirements, biosolids disposal requirements, and self-monitoring requirements.

Under the terms of the NPDES permit, the City may discharge an ADWF of up to 9.0 MGD of secondary-treated effluent to Old River in the southern Sacramento-San Joaquin Delta. Effluent discharges must comply with the concentration limits outlined in **Table 3-2**.



**FIGURE 3-4**  
PROCESS FLOW DIAGRAM AT 9.0 MGD ADWF

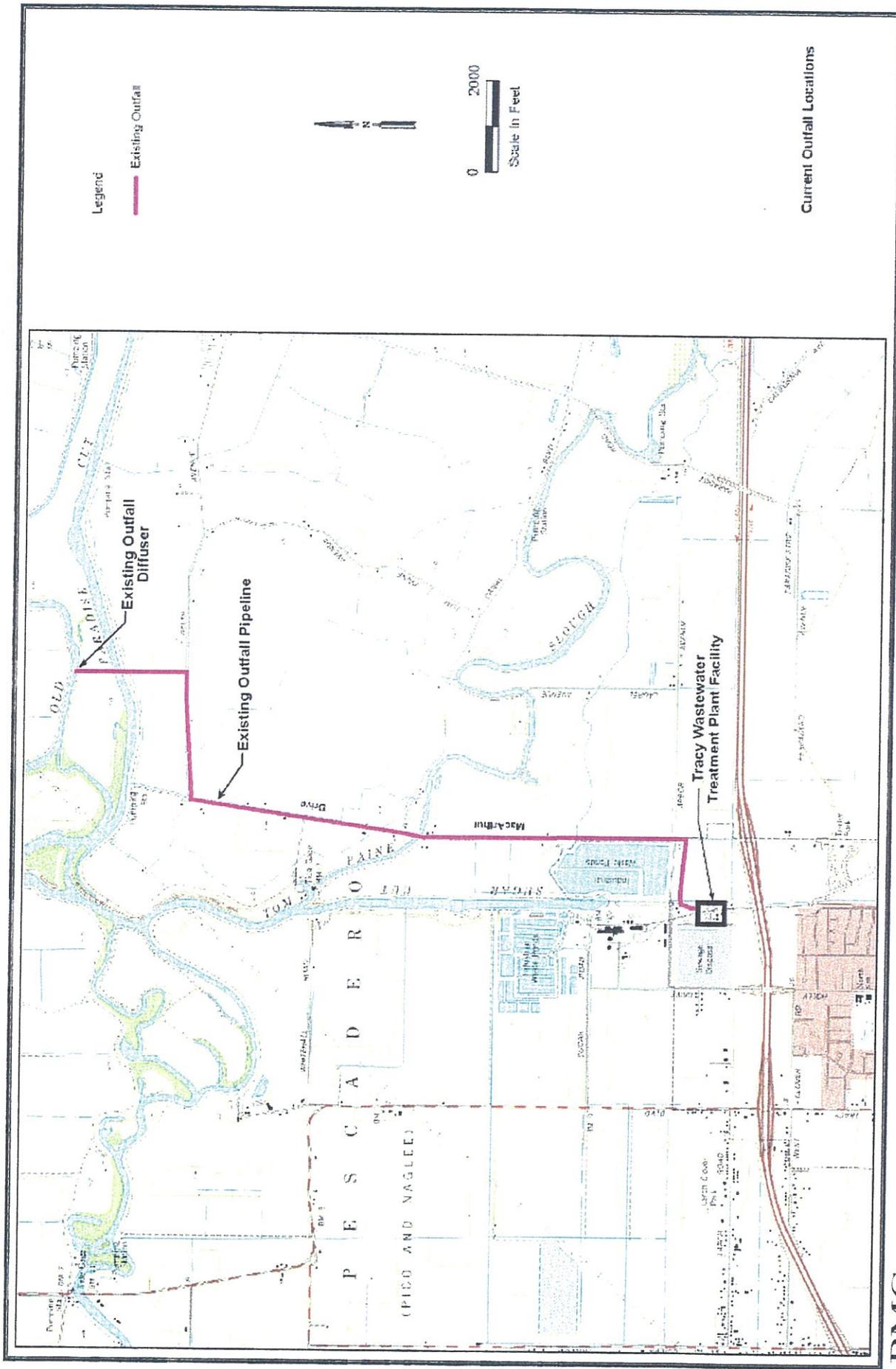
Source: CH2M Hill, 2001

### 3.0 PROJECT DESCRIPTION

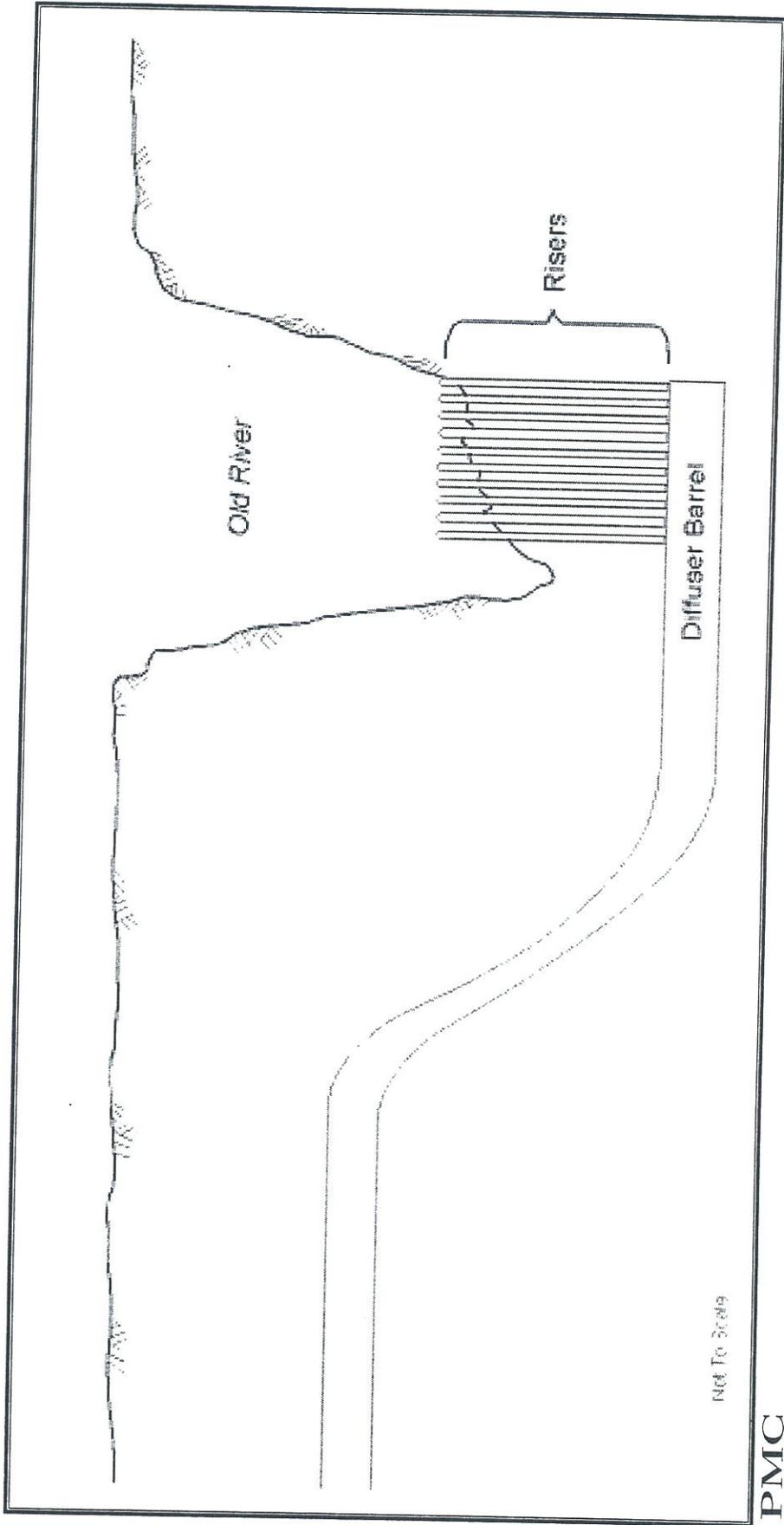
**TABLE 3-1  
TREATMENT PROCESSES CURRENTLY IN USE AT THE CITY OF TRACY WWTP**

Unit Processes in Service	Description
<b>Primary Treatment</b>	
Headworks	<ul style="list-style-type: none"> <li>• 2 trains (one for industrial flows, one for domestic flows), each with dedicated Parshall flumes</li> <li>• 4 mechanical bar screen units (two for industrial flows, two for domestic flows)</li> <li>• 2 manually-cleaned screens (one for industrial flows, one for domestic flows)</li> <li>• 2 aerated grit chambers</li> </ul>
Primary Clarifiers	<ul style="list-style-type: none"> <li>• 4 rectangular clarifiers (each 32 ft × 72 ft × 9 ft sidewater depth) for domestic flows</li> <li>• 2 rectangular clarifiers (each 18 ft × 126 ft × 13 ft sidewater depth) for industrial flows</li> </ul>
<b>Secondary Treatment</b>	
Activated Biological Filter Towers (Biotowers)	<ul style="list-style-type: none"> <li>• 2 towers (each 52 ft × 48 ft × 22.5 ft media depth)</li> </ul>
Aeration Basins	<ul style="list-style-type: none"> <li>• 4 basins (each 52 ft × 52 ft × 17 ft sidewater depth)</li> </ul>
Secondary Clarifiers (with Phase 1A improvements complete)	<ul style="list-style-type: none"> <li>• 3 circular clarifiers (each 100 ft diameter × 14 ft sidewater depth)</li> </ul>
Disinfection/Dechlorination	<ul style="list-style-type: none"> <li>• 2 parallel chlorine contact basins at 110,000 gallons</li> <li>• 2 parallel chlorine contact basins at 106,000 gallons</li> </ul>
<b>Effluent Disposal</b>	
Effluent Pumping	<ul style="list-style-type: none"> <li>• 2 pumps at 6,500 gallons per minute each</li> <li>• 2 pumps at 6,000 gallons per minute each</li> </ul>
Effluent Outfall	<ul style="list-style-type: none"> <li>• 1 33-inch diameter 3.5 mile outfall pipeline (discharges to Old River via a diffuser consisting of ten 8-inch diameter diffuser ports)</li> </ul>
<b>Solids Handling</b>	
Dissolved Air Flotation Thickener	<ul style="list-style-type: none"> <li>• 2 basins (each 39 ft-9 in L × 10 ft-8.5 in W)</li> </ul>
Anaerobic Digesters	<ul style="list-style-type: none"> <li>• 2 tanks (75 ft dia. × 27 ft operational depth)</li> </ul>
Sand Drying Beds	<ul style="list-style-type: none"> <li>• 15 beds (445,250 sq-ft total area)</li> </ul>
<b>Storage Ponds</b>	
Aerated Ponds	<ul style="list-style-type: none"> <li>• 2 ponds and one standby pond with 24 million gallons total storage capacity</li> </ul>
Non-aerated Ponds	<ul style="list-style-type: none"> <li>• 3 ponds with 90 million gallons total storage capacity</li> </ul>
Emergency Storage Ponds	<ul style="list-style-type: none"> <li>• 1 pond with 24 million gallons total storage capacity</li> </ul>

Source: CH2M Hill, 2000.



**FIGURE 3-5**  
CURRENT OUTFALL LOCATIONS



**FIGURE 3-6**  
DIFFUSER SCHEMATIC

### 3.0 PROJECT DESCRIPTION

**TABLE 3-2  
CURRENT EFFLUENT LIMITATIONS FOR THE TRACY WWTP  
EFFECTIVE MAY 1996 TO MAY 2001**

Constituents	Units	Average Monthly	Average Weekly	30-Day Median	Daily Maximum
BOD <sub>5</sub>	mg/L	20	40	--	50
Total Suspended Solids	mg/L	20	40	--	50
Settleable Matter	mg/L	0.1	--	--	0.2
Chlorine Residual	mg/L	--	--	--	0.1
Oil and Grease	mg/L	10	--	--	15
Total Coliform Organisms	MPN/100 mL	--	--	23	500
96 Hour Bioassays	% Survival	70% minimum, 90% median for any 3			
pH	--	Discharge between 6.5 and 8.5			

Source: CH2MHill, February 2001

MPN: most probable number

mg/L: milligrams per liter

mL: milliliters

In addition to these effluent requirements, the permit also established several additional numerical and qualitative effluent limits including the following conditions:

- Discharge shall not cause the dissolved oxygen concentration in Old River to fall below 5.0 mg/L.
- Discharge shall not cause a turbidity increase of more than 10 percent over background levels.
- Discharge shall not create a zone of temperature increase exceeding 1° Fahrenheit, which exceeds more than 25 percent of the area of the stream. Also, the discharge shall not cause a temperature rise greater than 4° Fahrenheit in the receiving water.
- Discharge shall not cause the following on the receiving waters:
  - Visible oil, grease, scum, foam, floating or suspended material.
  - Concentrations of materials that are deleterious to human, animal, aquatic, or plant life.
  - Aesthetically undesirable discoloration of the receiving waters.
  - Fungus, slimes, or other objectionable growths.
  - Bottom deposits.
- Violation of any applicable water quality standard as required by the Clean Water Act.

#### EXISTING EFFLUENT QUALITY

Effluent generated by the WWTP contains a variety of constituents that are of concern. They include Carbonaceous Biological Oxygen Demand 5-day (CBOD<sub>5</sub>) (indicates the amount of organic solids in the wastewater), Total Suspended Solids (TSS), pH (indicates the concentration of hydrogen ions in solution), ammonia, total coliform, fecal coliform (used as an indicator of the

presence of pathogens in water), Total Dissolved Solids (TDS), hardness, turbidity, temperature (higher temperatures affect oxygen-holding capacity of water and the rate at which chemical reactions occur), various trace elements (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc), cyanide and trace organics. Existing effluent quality, in terms of each of the aforementioned constituents, is summarized in **Table 3-3**. A detailed analysis of existing and projected effluent quality is provided in Section 4.6, Surface Hydrology, Groundwater and Water Quality.

Under its current discharge permit, the WWTP is permitted for up to 9.0 MGD ADWF. The City is in the process of renewing its existing permit. Based on results of the preliminary water quality impact analysis, treatment beyond the current permitted levels of secondary treatment would be required to protect the water quality and beneficial uses of the Old River at future effluent flows. Future treatment requirements are assumed to include complete nitrification of the secondary effluent for ammonia removal, improved solids and turbidity removal, and improved disinfection. Anticipated permit limitations may be similar to tertiary treatment standards used at other WWTPs and are at levels that would allow the water to be reclaimed on agricultural lands as defined by Title 22 of the California Code of Regulations.

#### **Section 303(D) Impaired Waters List**

Under Section 303(d) of the Clean Water Act, States are required to develop lists of water bodies that will not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). The most recent Section 303(d) list in California was issued in 1998 (SWRCB, 1998) and was approved by USEPA in May, 1999. Sacramento-San Joaquin Delta waterways and the San Joaquin River are listed for a number of pollutants (e.g. mercury, electrical conductivity, selenium, etc.).

Section 303(d) requires that the State develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL prepared by the State must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. The United States Environmental Protection Agency (USEPA) must either approve a TMDL prepared by the State or must disapprove the State's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the load allocation prescribed in the TMDL. This will be discussed in greater detail in Section 4.6, Surface Hydrology, Groundwater and Water Quality.

### 3.0 PROJECT DESCRIPTION

**TABLE 3-3  
EXISTING EFFLUENT QUALITY**

Constituent	Units	Existing Effluent Concentration	
		Average	Maximum
CBOD <sub>5</sub>	mg/l	20	30
Total Suspended Solids (TSS)	mg/l	15	30
pH		7.3	7.5
Ammonia	mg/l	15	30
Total Coliform	MPN/100 ml	23	1600
Fecal Coliform	MPN/100 ml	<23	240
Total Dissolved Solids (TDS)	mg/l	1,000	1,200
Hardness	mg/l	290	310
Turbidity	NTU	5	20
Temperature	Deg F	77	85
Trace Elements			
Arsenic	ug/l	3	4
Cadmium	ug/l	0.05	0.1
Chromium	ug/l	1.7	2.4
Copper	ug/l	6	10
Lead	ug/l	5	19
Mercury	ug/l	0.015	0.02
Nickel	ug/l	2.5	5
Selenium	ug/l	0.8	1.0
Silver	ug/l	0.6	1.0
Zinc	ug/l	30	84
Cyanide	ug/l	3	5
Trace Organics <sup>1</sup>	ug/l	27.15	51.45

Source: Larry Walker Associates, 2001.

<sup>1</sup> Total for bromodichloromethane, chloroform, bromoform, dichlorobromomethane, 1,4-dichlorobenzene, dichloromethane, toluene, dieldrin, bis 2(ethylhexyl) phthalate, phenol, tetrachloroethylene, trichloroethylene, ethylbenzene, aldrin, endosulfan, and heptachlor.

mg/l = milligrams/litre

MPN/100 ml = most probable number/100 millilitre

ug/l = micrograms per litre

NTU = Nephelometric Turbidity Unit

### 3.3 PROJECT PURPOSE AND NEED

The purpose of the proposed project is to provide adequate wastewater treatment capabilities sufficient to treat wastewater flows generated by existing and planned development within the City of Tracy service area. Buildout of the Tracy area under the City of Tracy UMP is anticipated to result in a projected population of approximately 162,000. The UMP outlines the planned development for the City over the next 20 years.

Wastewater flows to the plant would increase proportionately as the City's population increases. In the summer of 1999, the combined flow from domestic users and Leprino Foods was approximately 6.5 MGD. Based on the growth projections, the plant's existing capacity would

be exceeded by the year 2005. The expansion project is required to expand the plant capacity beyond 9.0 MGD to handle additional wastewater from the City of Tracy service area. The phased expansion to 16 MGD is anticipated to accommodate approximately 15.15 MGD (approximately 20,000 equivalent consumer units [ECUs]) of future planned domestic and industrial flows and 0.85 MGD of future Leprino flows. However, the recent adoption of Measure A, which amends provisions of the existing Residential Growth Management Plan (or Growth Management Ordinance [GMO]) could affect the timing of residential growth in the City which in turn may affect the timing of implementation of Phases 3 and 4 of the WWTP expansion. This issue will be discussed in detail in Section 7.2, Growth Inducement.

The proposed wastewater treatment plant expansion to 16 MGD is only one component for accommodating wastewater service for long-term planned development in the Tracy service area. Buildout of land uses identified in the City of Tracy UMP is anticipated to generate a wastewater demand of approximately 32.5 MGD. Therefore, this expansion project would support only a portion of the development planned under the UMP. Other projects that would provide additional wastewater service to the City to serve UMP buildout requirements include the planned Tracy Hills Permanent Wastewater Reclamation Facility (5.2 MGD), future potential expansion of the City's wastewater treatment plant, and other satellite treatment plants as identified in the Wastewater Master Plan (City of Tracy, 1994).

#### 3.4 PROJECT OBJECTIVES

The proposed expansion of the existing WWTP is designed to meet the following primary objectives:

- To provide sufficient treatment and disposal capacity to meet the demands of existing and planned populations within the service area;
- To protect water quality and public health through compliance with applicable regulations for the treatment of, disposal, and reuse of wastewater and wastewater residuals (biosolids);
- To maximize the use of existing facilities at available space at the existing WWTP site; and
- To minimize environmental effects through the placement and operation of new facilities at the existing WWTP site.

#### 3.5 PROJECT CHARACTERISTICS

Below is a description of project components associated with WWTP expansion. Please note that this project and EIR does not include consideration of future City-wide wastewater conveyance improvements that may be necessary for wastewater service.

### 3.0 PROJECT DESCRIPTION

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#### INCREASE IN WWTP CAPACITY

There is adequate land area at the existing WWTP site to accommodate additional plant facilities to increase capacity to 16.0 MGD. Moreover, the WWTP can be readily expanded within existing facility footprints by adding process units. For example, an additional clarifier could be constructed immediately adjacent to the existing primary clarifier, as opposed to siting an additional clarifier at a more distant location to accommodate spatial constraints.

#### Phasing Considerations

Many factors are driving the expansion and upgrade of the City of Tracy WWTP. These factors include:

- NPDES permit renewal
- Timing of needed capacity expansion improvements
- Appropriate phase-out of obsolete systems
- Funding/financial constraints

To facilitate implementation of the City of Tracy WWTP expansion and upgrade, a phasing plan was developed as part of the City of Tracy Wastewater Treatment Plant Facilities Plan (City of Tracy, May 22, 2001). The phasing plan is structured to minimize the impact on plant operations and to facilitate cost-effective design and construction. The plan organizes the project into four phases.

Phase 1 would improve effluent quality and increase plant capacity to 10.8 MGD. This includes expanding preliminary treatment capabilities, including a new headworks train for all domestic flows up to 15.5 ADWF and 37.88 MGD peak hourly wet weather flow (PHWWF). The existing headworks building would be removed. Primary treatment improvements include rehabilitation of existing primary clarifiers. In addition, a 1.6 mg flow equalization basin would be constructed to provide storage of flows in excess of the maximum treatment capacity of downstream facilities during a maximum one-day wet weather storm event. To meet more stringent discharge requirements anticipated in the new NPDES permit, new secondary treatment processes are proposed as part of Phase 1. These include a new primary effluent pump station, construction of a new aeration basin (number 3) and blower building, conversion of existing aeration basin/rectangular clarifiers to aeration basin numbers 1 and 2, and modifications to flow distribution structure number 3. Tertiary treatment additions include two 8-MGD modular filters (totaling 16 MGD), a filter influent pump station, flocculation basin, a filter effluent distribution structure, a backwash waste equalization basin, backwash waste return pump station, and backwash supply pump station. Disinfection would be changed from gaseous chlorine to liquid sodium hypochlorite, thus necessitating construction of a new chemical building during Phase 1. Lastly, two new effluent pumps are proposed as part of Phase 1 to improve reliability of the plant's existing effluent pumps.

Phase 2 would increase plant capacity to 12 MGD, but would not result in significant process changes. During Phase 2, primary treatment would be expanded by adding a new primary clarifier (number 5) to the WWTP to increase plant treatment capacity to 12 MGD. This addition would increase the capacity of the domestic primary clarifiers to 12.6 MGD not including the 0.85 MGD industrial flow

component. Primary clarifier number 5 and modifications to flow distribution structure 6 should also occur during Phase 2. Disinfection capabilities would be expanded through the addition of a new chlorine contact basin (number 5). No improvements to preliminary treatment, flow equalization, secondary or tertiary treatment, or solids handling are proposed during Phase 2.

A new 36-inch diameter effluent pipeline and outfall would be constructed as part of Phase 2. The pipeline would be made of concrete-coated, mortar-lined steel pipe and would outfall approximately 800 feet west of the existing outfall. The diffuser pipe ("diffuser barrel") is proposed to be 48-inches in diameter. It would be centrally located in the river channel (along the river bottom) and have twelve 8-inch diameter risers placed at 7-foot intervals for a total diffuser length of 77-feet. Each riser would extend approximately one foot above the river bottom. A 6-inch port would be attached at the top of each riser discharging downstream and up 5 degrees from horizontal. Duck bill valves, which open for flow going out of the ports but prevent flow going in, are recommended for the ports as a means of preventing inflow and sedimentation within the diffuser at low effluent flows. The actual valve size and connecting port would need to be 8-inches to achieve the equivalent full flow port opening of 6-inches (CH2M Hill, 2001).

To install the diffuser in Old River, a construction area would be created. This would be accomplished by driving two rows of sheetpiles into Old River and placing steel panels between and at the end of the rows. Containing the construction area would minimize turbidity in Old River and improve safety. The river bottom would be excavated, the pipe installed and the risers connected. The pipeline trench would be backfilled with imported gravel and rock then covered with native material from the excavation.

Phase 3 would increase plant capacity to 13.5 MGD. During Phase 3, no additional preliminary treatment improvements, primary treatment improvements, or flow equalization basins would be constructed. However, secondary treatment would be expanded to include a new aeration basin and secondary clarifier to increase plant capacity to 13.5 MGD ADWF. The capacity of the new aeration basin and clarifier would be 4 MGD. Total capacity of secondary treatment processes would be 16 MGD after completion of Phase 3. Tertiary treatment expansion includes one new filter influent pump to increase capacity to 13.5 MGD. This would bring the total tertiary treatment process capacity to 16 MGD. No disinfection, plant effluent or solids handling improvements are proposed as part of Phase 3.

Phase 4 would increase plant capacity to 16 MGD. Phase 4 facilities would include improvements to primary treatment, disinfection, plant effluent and solids handling. A new domestic primary clarifier (number 6) would be constructed to increase domestic capacity to 15.15 MGD. In addition, a new chlorine contact basin would be constructed to increase total plant capacity to 16 MGD during Phase 4. As a result of the increased plant capacity, 2 new plant effluent pumps would be constructed. Lastly, a new anaerobic digester (number 3) and a new digester control building would be constructed as part of Phase 4 to increase the solids handling capacity of the WWTP. No changes to preliminary treatment, flow equalization, secondary or tertiary treatment would occur during Phase 4.

A summary of the project phases is presented in **Table 3-4**. A site plan showing the project phases is presented graphically in **Figure 3-7**. The timing of each phase is presented in **Figure 3-8**, which compares the capacity of each phase with the projected wastewater flow.

3.0 PROJECT DESCRIPTION

TABLE 3-4  
RECOMMENDED PROJECT PHASING SUMMARY

Phase 1 (10.8 MGD)	Phase 2 (12.0 MGD)	Phase 3 (13.5 MGD)	Phase 4 (16.0 MGD)
<b>Preliminary Treatment</b>			
New Domestic Headworks	N/A	N/A	N/A
Demolish Existing Domestic Headworks			
<b>Primary Treatment</b>			
Rehabilitate Existing Primary Clarifiers	New Primary Clarifier Number 5 Modify Flow Distribution Box No. 6	N/A	New Primary Clarifier No. 6
<b>Flow Equalization Basin</b>			
New Influent Pump Station	N/A	N/A	N/A
New Flow Equalization Basin			
New Flow Distribution Box No. 2A			
Modify Flow Distribution Box No. 3			
<b>Secondary Treatment</b>			
Modify Flow Distribution Box No. 1	N/A		N/A
New Primary Effluent Pump Station			
New Aeration Basin Numbers 1, 2 & 3			
Expand Flow Distribution Box No. 3			
New Blower Building			
		New Primary Effluent Pump No. 3 New Aeration Basin No. 4 New Blowers New Secondary Clarifier No. 4 New RAS Pump New WAS Pump	N/A/

**3.0 PROJECT DESCRIPTION**

Phase 1 (10.8 MGD)	Phase 2 (12.0 MGD)	Phase 3 (13.5 MGD)	Phase 4 (16.0 MGD)
<b>Tertiary Treatment</b>			
New Filter Influent Pump Station	N/A	New Filter Influent Pump	N/A
New Flocculation Basin			
New Filters			
New Filter Effluent Distribution Box			
New Backwash Waste Equalization Basin			
New Backwash Waste Return Pump Station			
New Backwash Supply Pump Station			
<b>Disinfection</b>			
New Chemical Building	New Chlorine Contact Basin No. 5	N/A	New Chlorine Contact Basin No. 6
<b>Plant Effluent</b>			
2 New Plant Effluent Pumps	New 36-inch Effluent Pipeline New Outfall	N/A	2 New Plant Effluent Pumps
<b>Solids Handling</b>			
Pave Drying Beds	N/A	N/A	New Digester Number 3 New Digester Control Building Pave Drying Beds, as necessary

Source: CH2MHill, 2001

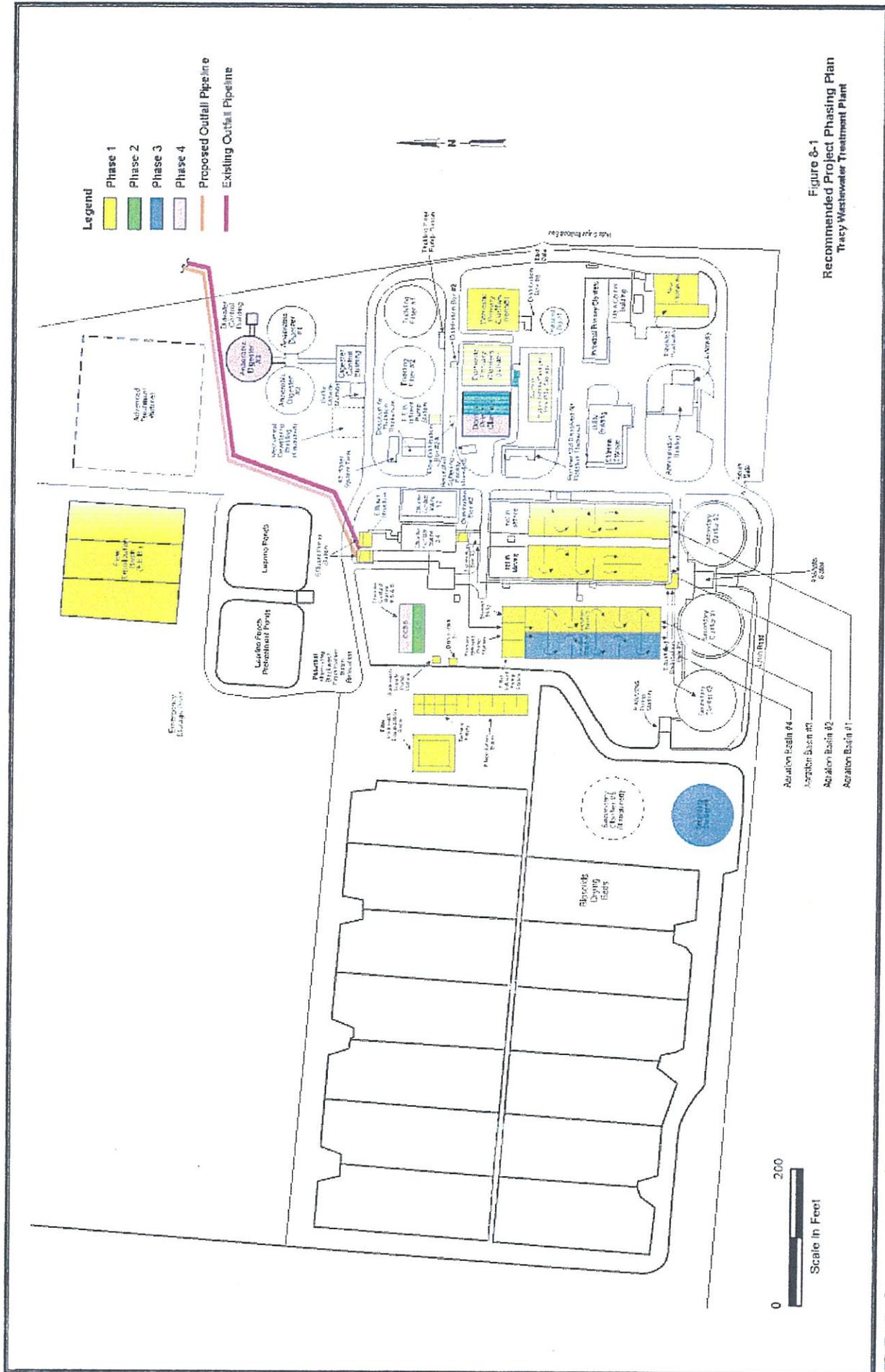
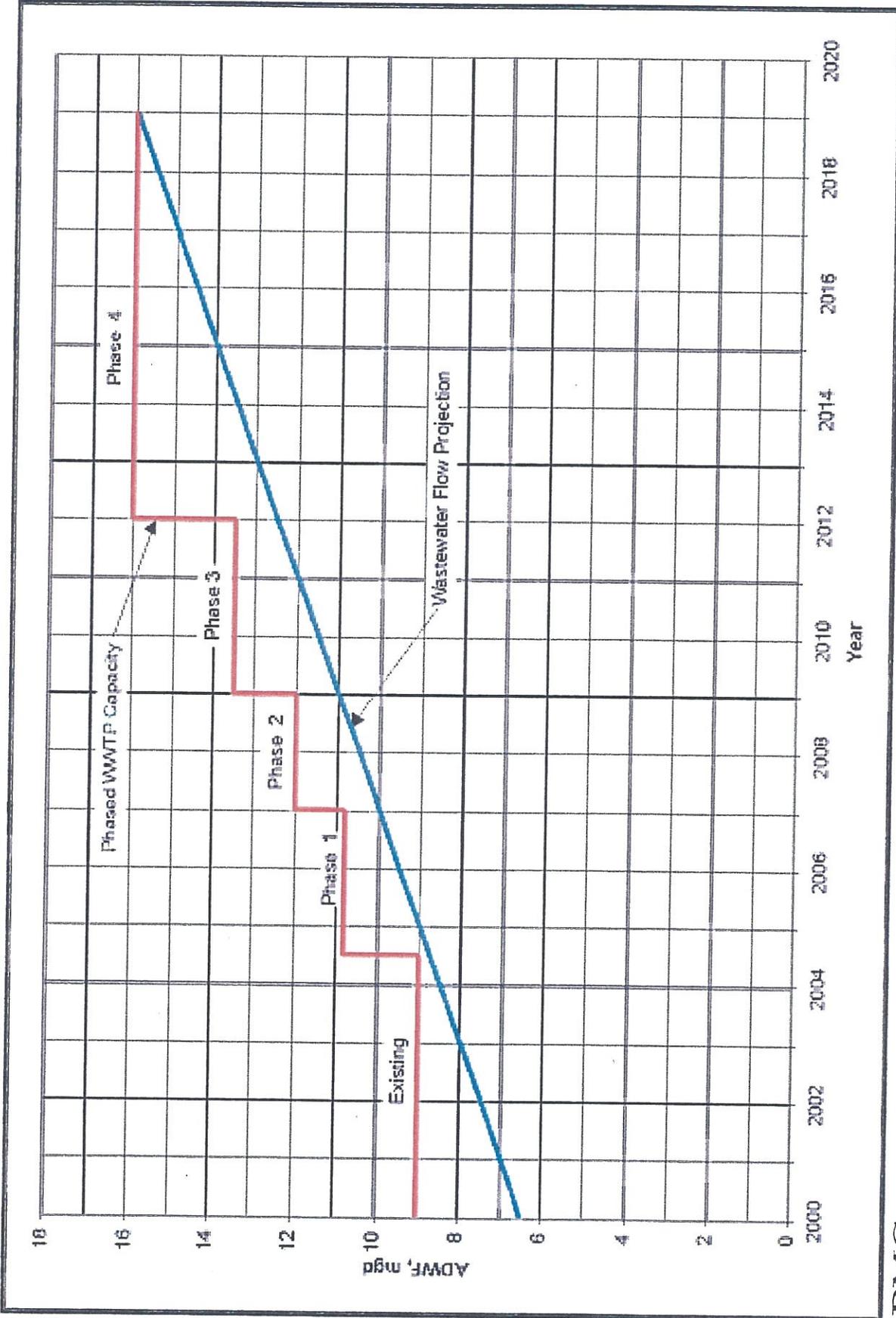


Figure 8-1  
Recommended Project Phasing Plan  
Tracy Wastewater Treatment Plant

**FIGURE 3-7**  
RECOMMENDED PROJECT PHASING PLAN



**FIGURE 3-8**  
PHASED TREATMENT CAPACITY

### 3.0 PROJECT DESCRIPTION

The proposed effluent pipeline route and diffuser location are shown in **Figure 3-9**. The proposed diffuser to be placed on the bottom of Old River is depicted in **Figure 3-10**.

#### ANTICIPATED EFFLUENT WATER QUALITY

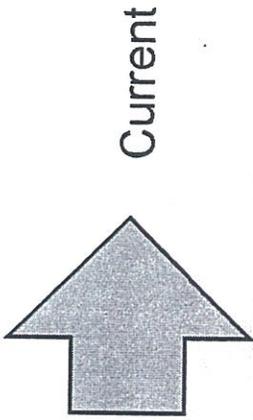
Wastewater from domestic use varies by municipality. However, the constituent characteristics typically remain similar within a municipality as wastewater quantity increases within the population. Unless the wastewater characteristics are significantly altered, such as through the addition of a large industrial customer with markedly different wastewater strengths, current constituent concentrations are adequate for estimating future loading concentrations. The proposed project would result in a change in the quality of effluent generated by the WWTP. Projected effluent quality for key constituents is shown in **Table 3-5**. A full analysis of changes in these constituents from existing conditions to post-project implementation is provided in Section 4.6, Surface Hydrology, Groundwater and Water Quality.

**TABLE 3-5  
PROJECTED EFFLUENT QUALITY**

Constituent	Units	Projected Effluent Concentration	
		Average	Maximum
CBOD <sub>5</sub>	mg/l	5	20
Total Suspended Solids (TSS)	mg/l	5	20
pH		7.0	7.5
Ammonia	mg/l	0.5	3.0
Total Coliform	MPN/100 ml	2.2	23
Fecal Coliform	MPN/100 ml	<2.2	<23
Total Dissolved Solids (TDS)	mg/l	1,000	1,200
Hardness	mg/l	290	310
Turbidity	NTU	2	5
Temperature	Deg F	77	85
Trace Elements			
Arsenic	ug/l	2.0	4.0
Cadmium	ug/l	0.05	0.1
Chromium	ug/l	0.5	1.0
Copper	ug/l	5	10
Lead	ug/l	0.5	1.0
Mercury	ug/l	0.01	0.015
Nickel	ug/l	2.5	5
Selenium	ug/l	0.5	1.0
Silver	ug/l	0.2	0.5
Zinc	ug/l	30	50
Cyanide	ug/l	3	5
Trace Organics	ug/l		

Source: Larry Walker Associates, 2001. mg/l = milligrams/litre MPN/100 ml=Most Probable Number  
ug/l = micrograms per litre NTU = Nephelometric Turbidity Unit



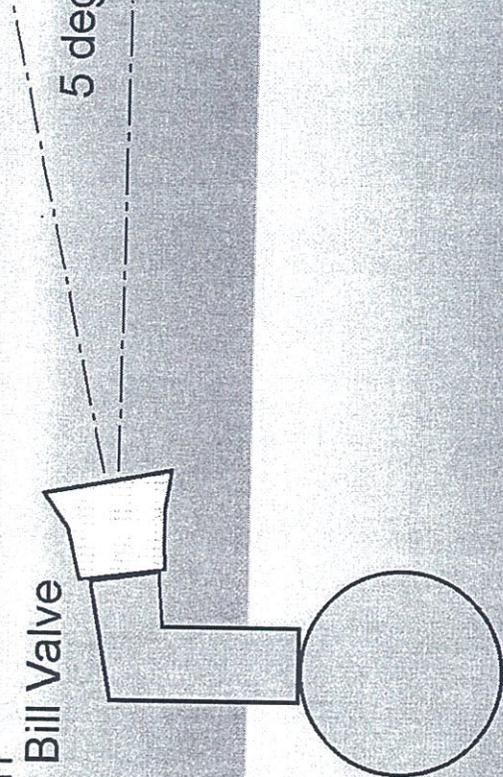


8-inch  
Duck Bill Valve

Riser

River Bottom

5 degrees



Not To Scale

SOURCE: CH2M HILL, 2001



**FIGURE 3-10**  
PROPOSED DIFFUSER IN OLD RIVER

### 3.6 ALTERNATIVES

The project alternatives were selected in accordance with the provisions of CEQA section 15126.6 which requires that an EIR include “a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.” The alternatives evaluated in this EIR are divided into two groupings, which consists of various locations for effluent discharge (i.e. disposal alternatives) and wastewater treatment options. Some of these alternatives were included as part of the City of Tracy Wastewater Treatment Plan Draft Facilities Plan (CH2M Hill, 2001). Other alternatives were developed based on public input and comments received on the Notice of Preparation (NOP). Each of these alternatives is identified below and described in full detail in Section 6.0, Alternatives to the Project. **Figure 3-11** shows the possible pipeline alignments and diffuser locations.

#### NO PROJECT ALTERNATIVE

The No Project Alternative would result in no changes to facilities at the WWTP and continued use of the existing diffuser at Old River.

#### DISPOSAL ALTERNATIVES

**Co-location Alternative** - New pipeline and outfall diffuser adjacent to existing outfall on Old River

**Dougherty Cut Alternative** - New pipeline and outfall diffuser at Dougherty Cut

**Old River South Alternative** - New outfall diffuser at Old River southwest of existing outfall.

**Sugar Cut Alternative** - New pipeline and outfall diffuser at Sugar Cut.

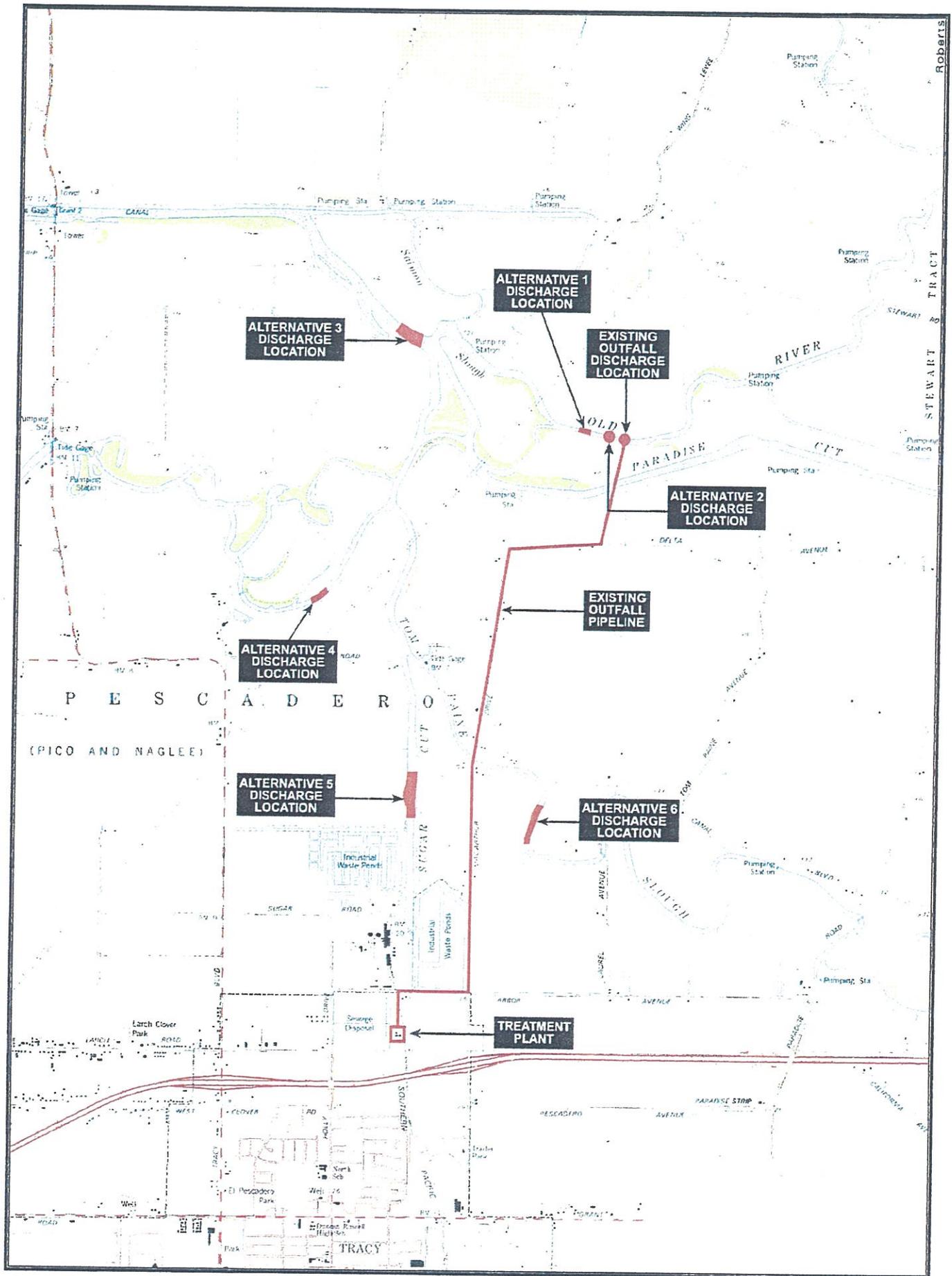
**Tom Paine Slough Alternative** - New pipeline and outfall diffuser at Tom Paine Slough.

**Maximum Summertime Reuse of Recycled Water (no seasonal storage)** - Piping water to customers for reclamation and reuse purposes in Summer months and discharging to Old River in the Fall, Winter and Spring.

**Maximum Reuse of Recycled Water (with seasonal storage)** - Piping water to customers for reclamation and reuse purposes in the Summer months and storing flows in the Fall, Winter and Spring (i.e. no discharge).

#### TREATMENT ALTERNATIVES

**Peak Hour Dry Weather Filtration for Tertiary Treatment (23 MGD)** - Provides filtration for peak hour dry-weather flow. During periods of peak-hour wet weather flow, this alternative would provide partial filtration (i.e. it would accommodate only 23 MGD instead of 30 MGD).



**FIGURE 3-11**  
 DISCHARGE LOCATION ALTERNATIVES

**Advanced Treatment** - Post-tertiary treatment to remove trace organics, metals and dissolved materials (e.g. salts). Filtered effluent would be put through a series of membranes under pressure to remove residual materials prior to discharge.

#### 3.7 OPERATIONAL CHANGES

The proposed project would require changes in processes and operations at the WWTP as part of project implementation. The main operational changes that would occur include replacing chlorine and sulfur dioxide gases with liquid chemicals, adding nitrification and filtration, changing the method of secondary treatment, and cleaning the equalization basin. Chlorine gas would be replaced with liquid sodium hypochlorite for disinfection and sulfur dioxide gas would be replaced with sodium hypochlorite and sodium bisulfite for dechlorination. Both replacement chemicals are safer than the gas counterparts currently used. Additional staff would not be required to implement this change. Current WWTP staff would receive training in the use of these chemicals.

Adding nitrification and filtration would increase the power consumption of the plant, primarily for running air blowers. The filtration would also add one more process unit to the treatment train that would require operation and maintenance. Additional staff would not be required to run the nitrification process. However, the equivalent of one additional operator would be needed for the filtration process.

Secondary treatment would change from trickling filter solids contact to a single-stage activated sludge system. This change would likely require some staff training but no additional staff.

The equalization basin would be used 28 days in the winter months assuming a worst-case scenario (i.e. 7 days per month for 4 months). Cleaning with hoses or sprinklers would be necessary once or twice a year. Staff training would be required but additional staff is not necessary for this task.

#### 3.8 PROJECT TIMING

Construction of Phase 1 is anticipated to begin in mid- to late 2002 and be completed by early 2004. Phase 2, including the outfall pipeline, is projected to begin construction in 2005 and be in use by 2007. Phase 2 would have the longest duration due to construction of the pipeline. Phase 3 is anticipated to begin construction in 2008. Finally, Phase 4 would begin construction in approximately 2011. Both Phase 3 and Phase 4 may be delayed if City growth is less than originally projected in the UMP due to the effects of markets, revisions to UMP, and Measure A.

The project would require a variety of labor including carpenters, equipment operators, iron workers, pipe fitters and millwrights, painters, electricians, masons, etc. Equipment used during construction would include a 50 horse power (hp) and 175 hp fork lift, a front end loader, an excavator, a 20 ton and a 75 ton wheeled crane, a motor grader, a paver, a scrapper, one on-highway and one off-highway truck, one pick-up truck air compressor and several welders. In total, 4,270 equipment days would be necessary to complete the project (CH2M Hill, 2000).

### 3.0 PROJECT DESCRIPTION

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Overall, the project would take 24 months to construct and include 22 months of site grading, excavation, and earthmoving as well as 128 days of painting.

#### 3.9 DISCRETIONARY ACTIONS, PERMITS AND APPROVALS

A variety of actions are necessary to implement the expansion of the Tracy WWTP. Following is a list of agencies that 1) have facilities that may be impacted by construction of the proposed project; and 2) have jurisdictional oversight responsibilities. These entities and their involvement are summarized below:

*City of Tracy:* Actions that would be required from the City Council and/or City staff may include, but are not limited to, the following:

- Approval of the expansion of the WWTP;
- Approval of engineering details and plans associated with the expansion, outfall diffuser and outfall pipeline;
- Acquisition of easements and rights-of-way.

*U.S. Army Corps of Engineers:* Approval of permit for the placement of fill into jurisdictional waters of the U.S. for the new Old River outfall facility, pursuant to Section 404 of the Clean Water Act.

*California Department of Fish and Game:* Approval of a Streambed Alteration Agreement with the CDFG for the new Old River outfall facility, pursuant to Section 1600 of the Fish and Game Code.

*Pescadero Reclamation District No. 2058:* Approval of plans and specifications that may affect the District's reclamation, irrigation or levee systems.

*Regional Water Quality Control Board, Central Valley Region (RWQCB):* Approval of new or modified National Pollutant Discharge Elimination System (NPDES) permit associated with expanded effluent discharges into the Old River. A Water Certification or Waiver from the RWQCB may also be required for the new Old River outfall facility pursuant to Section 401 of the Clean Water Act. In addition to the operation permits, the project would also require approval of National or Individual Pollutant Discharge Elimination System permits associated with construction activities. The City has been meeting with the RWQCB throughout the planning stages of the project.

*San Joaquin Valley Air Pollution Control District:* Approval of an "Authority to Construct" permit for the diesel generators for backup power for the pumps proposed for the system.

*San Joaquin County Community Development Department:* Construction activities occurring in roadways located in unincorporated County lands would require permits from the San Joaquin County Community Development Department.

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## 4.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

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**SECTION 4.1**  
**LAND USE**

This section of the EIR describes the existing land uses on and surrounding the project site. This section also discusses the proposed project in the context the City of Tracy Urban Management Plan (UMP)/General Plan and other proposed, pending or adopted plans and policies. The analysis focuses upon land use compatibility and consistency with both the UMP and the Wastewater Master Plan (City of Tracy, 1994).

### 4.1.1 ENVIRONMENTAL SETTING

#### EXISTING LAND USE

##### Surrounding Land Uses

The WWTP project site is located within the northern portion of the City of Tracy UMP area. The WWTP is within but at the edge of the City limits, adjacent to County lands. The WWTP provides wastewater collection, treatment, and disposal for residences, businesses, and industries in the City of Tracy.

The project site adjoins the existing wastewater treatment facility located at the corner of Larch Road and Holly Drive. Surrounding properties are primarily industrial, including the Holly Sugar refining facility to the north, a scrap metal recycling facility to the west, and a mini storage to the south. In addition, the site is surrounded by agricultural land to the east and south. Interstate 205 is located to the south of the site beyond Larch Road and a swath of agricultural land.

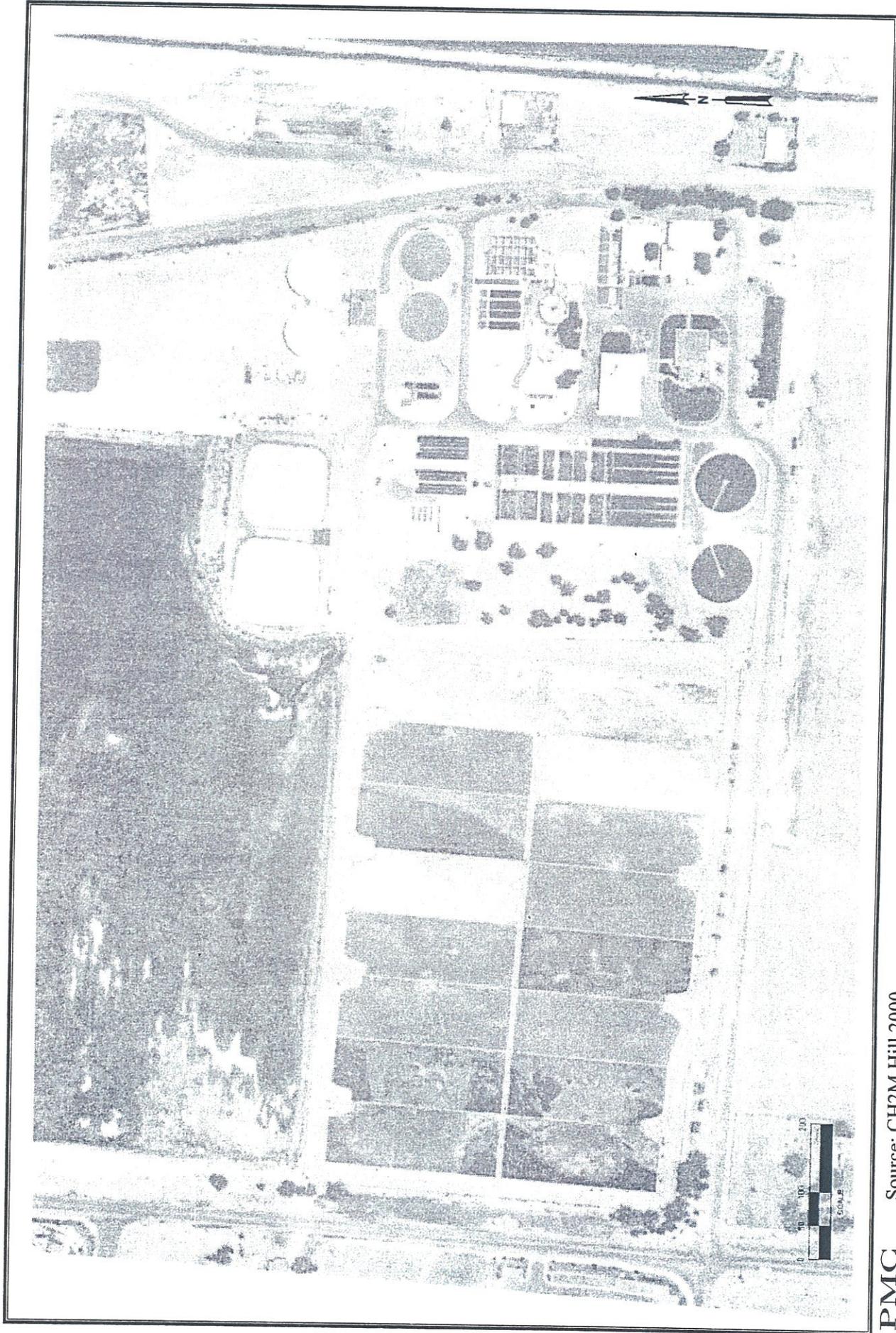
The existing outfall pipeline is located adjacent to Arbor Avenue, MacArthur Drive, and Delta Avenue. The final length of the pipeline that leads to the outfall at Old River is located in an agricultural field. The pipeline route itself is surrounded by rural roadways and agricultural land.

##### On-Site Land Uses

The WWTP site is a relatively flat parcel. On-site uses include an administration building, headworks, primary and secondary clarifiers, the Leprino Foods pretreatment ponds, trickling filters, anaerobic digesters, aerators, chlorine contact basins, and a large area devoted to sand drying beds. Vegetation on the site is limited and consists primarily of Eucalyptus trees, grasses and miscellaneous shrubs along the fence surrounding the plant.

The existing plant site is 104 acres including 10 acres of liquid/solids facilities, 11 acres of sludge drying beds, 60 acres of aerate and ponds, 14 acres of emergency ponds and 9 unused acres (City of Tracy, 1994). Open areas between the sand drying beds and the aeration basin to the north of the sand drying beds provide adequate space to expand plant facilities capacity to treat 16 MGD of wastewater flows. **Figure 4.1-1** provides an aerial photograph showing existing plant facilities and site features.

As stated above, the existing outfall pipeline is located within the right-of-way of Arbor Avenue, MacArthur Drive, and Delta Avenue as well as through agricultural lands. The pipeline route also crosses Paradise Cut. Micro-tunneling would be used to construct the segment of pipeline crossing Paradise Cut.



**FIGURE 4.1-1**  
AERIAL VIEW OF EXISTING WWTP FACILITIES

Source: CH2M Hill 2000

### 4.1.2 REGULATORY FRAMEWORK

#### CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

Approved in 1993, the City of Tracy UMP includes a land use map, which is a graphic representation of future land use classifications for all parcels of land in the 72,570-acre Tracy Planning Area (TPA). The UMP plans for Core Contiguous development expanding from the City's existing urban core and also envisions nodes of development that are self-sustaining and contribute to the sense of community without detracting from the existing Tracy downtown core. The UMP plans for six such urban centers targeted for development over a 20-year horizon. The WWTP site is located within northern limits of the City Core Contiguous area. The outfall pipeline is located primarily outside the City limits within San Joaquin County. **Figure 4.1-2** shows the existing City land use designations and zoning on the WWTP site and surrounding properties. The site is designated Public Facilities (PUB) on the City of Tracy UMP Land Use Map. Adjacent lands are designated Industrial (I). Areas surrounding the WWTP site, including the outfall pipeline, are located within the 100-year flood hazard area. However, the WWTP site is not located in the 100-year flood hazard area.

As a policy document, the UMP sets forth a wide range of goals, policies and implementation measures intended to guide the type, character and intensity of growth within the City. Every project considered by the City of Tracy must either be consistent with the UMP, or found to further the goals of the UMP if modified.

**Table 4.1-1** includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

**TABLE 4.1-1**  
**PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
Goal LU 1: A balance between residential population, jobs and ability to provide services.	Yes	The proposed project would provide wastewater services to accommodate planned growth in the City of Tracy.
Action LU 1.1.4: Public facilities will be installed concurrent with development.	Yes	The proposed project would be constructed in anticipation of planned growth.

#### CITY OF TRACY ZONING

The site and surrounding City lands are zoned M1, Light Industrial. The Tracy Planning/Zoning Ordinance identifies these areas for commercial and industrial activities. The WWTP is considered consistent with this zoning designation.

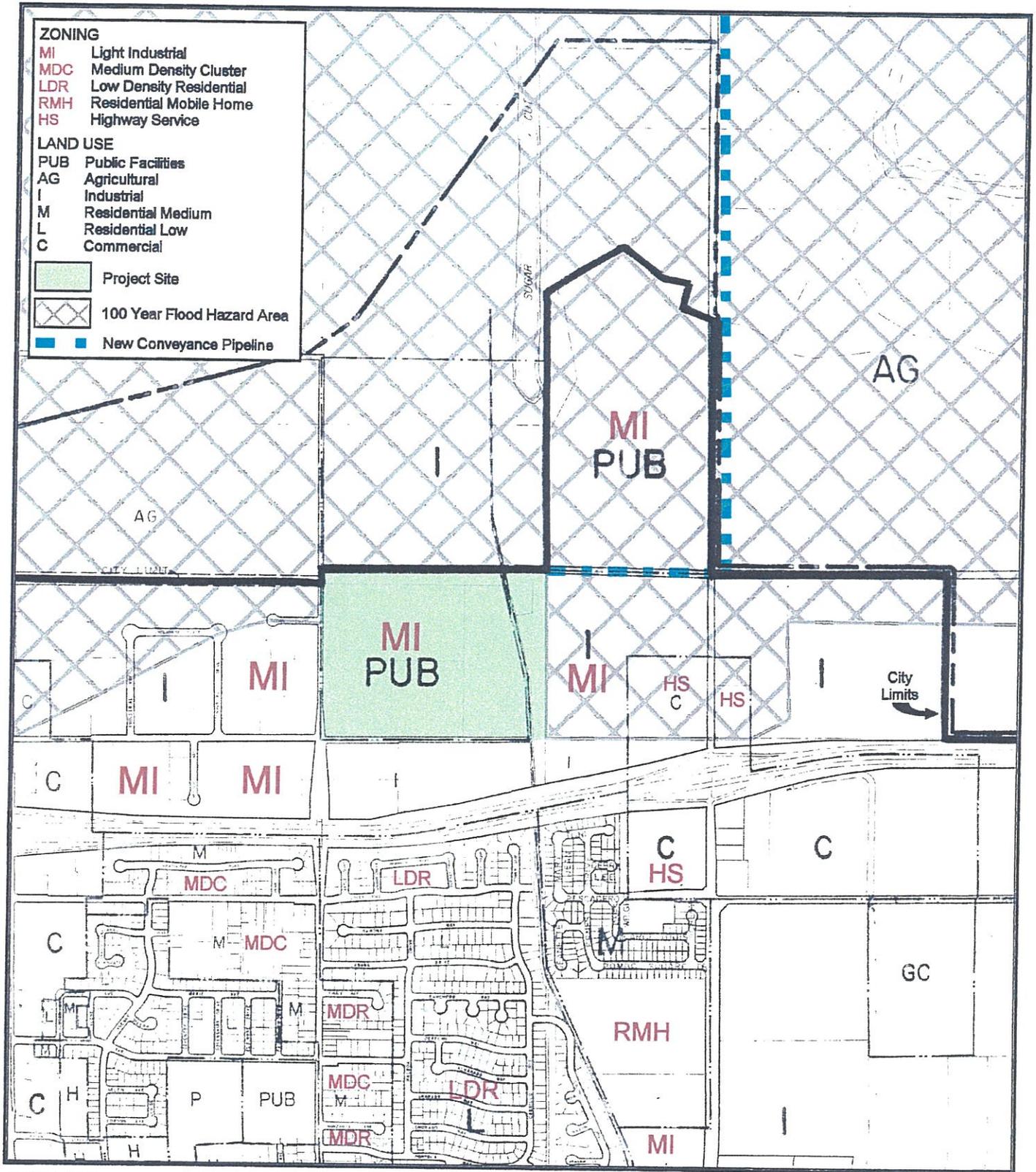


FIGURE 4.1-2  
EXISTING UMP LAND USE DESIGNATIONS AND ZONING

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## SAN JOAQUIN COUNTY GENERAL PLAN AND ZONING

The San Joaquin County General Plan designates the areas along the outfall pipeline route as General Agriculture. Similarly, these areas are zoned for AG-40 (General Agriculture, 40-acre minimum). The proposed project would not conflict with existing land use designations as the expansion would not introduce any new land uses. The conveyance pipeline would be buried within existing roadway right-of-way and agricultural lands. Therefore, the proposed project would be consistent with County General Plan land use designations.

## WASTEWATER TREATMENT MASTER PLAN

The City of Tracy Wastewater Master Plan (City of Tracy, 1994) provides the technical, environmental, and cost information needed to meet future wastewater requirements in response to both planned new development and more stringent discharge regulations. The recommended plan is composed of two phases. The first phase covers wastewater facility needs and issues until total wastewater flow approach 16 MGD. The second phase is the required expansion of wastewater facilities to treat wastewater flows between 16 MGD and 32.5 MGD (the projected maximum average daily wastewater flow at UMP buildout).

### 4.1.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

Land use impacts are considered significant if implementation of the project will:

- 1) Conflict with existing off-site (surrounding) land uses; or
- 2) Conflict with the adopted goals and policies of the UMP or other planning programs adopted for the purpose of avoiding or mitigating significant environmental effects.

#### METHODOLOGY

Evaluation of potential land use impacts of the proposed project was based on review of the UMP (City of Tracy, 1993a), UMP EIR (SCH. NO. 91092060) (City of Tracy, 1993b), The San Joaquin County General Plan 2010 (San Joaquin County, 1992), consultation with San Joaquin County, the Wastewater Master Plan (City of Tracy, 1994), and a field review of the project area.

Based on the analysis provided in the Notice of Preparation (NOP), the project is not expected to result in the division of an established community and would not result in any further loss of agricultural resources beyond what has been evaluated in the UMP EIR. Thus, neither of these impacts is expected to occur as a result of the project and is consequently not discussed further in this EIR.

Potential land use conflicts or incompatibility are usually the result of other environmental effects, such as the generation of noise or objectionable odors. Construction and operational impacts as they relate to land use are evaluated in this section. Detailed analyses of other relevant environmental effects (e.g. Noise, Air Quality) are addressed in other sections of this

## 4.1 LAND USE

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EIR. However, it should be noted that no analysis of Agricultural or Aesthetic resources is provided as the NOP identified that there would be no impacts associated with these issue areas.

### PROJECT IMPACTS AND MITIGATION MEASURES

#### Surrounding Land Use Compatibility

Land use impacts are primarily a function of the project's compatibility with surrounding land uses (both existing and planned), which in this case are either industrial or agricultural. Land use compatibility is measured in terms of specific environmental effects such as noise, air quality (including dust and odor), aesthetics and traffic. To the greatest degree possible, the EIR uses "quantifiable" data to measure such impacts, which can have an effect upon the "quality of life" in a defined area. For this reason, this land use analysis is supported by other specific discussions within the EIR including Section 4.4 (Noise) and Section 4.5 (Air Quality).

The proposed WWTP expansion would be located adjacent to existing facilities on the WWTP site. The existing facility was constructed at this location in 1930. The surrounding area is currently utilized for industry and agriculture. Both of these uses are considered compatible with wastewater treatment plants. There are no residential developments in the immediate vicinity as the area surrounding the plant is designated in the UMP as Industrial and Agriculture. The closest residential development is located approximately 1,000 feet south of the WWTP on the south side of I-205. The setback and intervening uses between the WWTP and residential development avoid potential land use compatibility issues between the two uses.

The new outfall pipeline would be constructed (essentially adjacent to the existing outfall pipeline) in Phase 2 of the project,. The route would follow Arbor Avenue east to MacArthur Drive. From this point the pipeline would extend north along MacArthur Drive to Delta Avenue. At Delta Avenue the pipeline would extend eastward approximately 2,500 feet before aligning north through agricultural land before terminating at Old River approximately 800 feet west of the existing outfall. The route would be located in existing roadway right-of-way. As with the WWTP, the outfall route is located in industrial and agricultural lands and would not result in any land use conflicts or disruption to existing land use. Temporary disruptions to traffic flows, access to existing uses, and increased noise in the project area would occur during construction. Traffic volumes along the affected roadways are low and residential development is sparse. These impacts would be limited to the construction period (approximately 20 months) and would not result in permanent conflicts with surrounding uses. Therefore, land use compatibility impacts associated with the expansion and operation of the WWTP are considered **less than significant**.

#### Consistency with Existing Plans and Policies

The expansion of the existing WWTP is consistent with the range of anticipated land uses, based upon the site's UMP land use designation of Public Facilities (PUB) and zoning of Light Industrial (M1), as well as with County land use (General Agriculture) and zoning designations (General Agriculture, 40-acre minimum). In addition, the project is an expansion of an existing use (Figure 4.1-3), not an introduction of a new use to the area. As a result, it is compatible with

existing surrounding uses (i.e. industrial and agricultural). Further, the project is necessary and consistent with UMP policies and actions relating to the provision of adequate infrastructure to accommodate planned growth in the City. The project also represents implementation of the Tracy Wastewater Master Plan (City of Tracy 1994). Therefore, impacts relative to consistency with existing plans and policies are considered **less than significant**.

### Construction Impacts

Construction of the proposed project would result in disturbances to the WWTP site and areas along the outfall pipeline route, the later focused within the Phase 2 expansion. The disturbances are limited to the period of construction and would not result in any permanent conflicts with surrounding uses. Therefore construction land use impacts are considered **less than significant**. (Note: Access limitations to residential uses along the pipeline route resulting from construction are addressed in Section 4.3, Traffic and Circulation.)

### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

#### CUMULATIVE SETTING

The cumulative land use setting is buildout of the Tracy area as defined in the UMP. The UMP promotes further urbanization of the Tracy area in keeping with a planned approach to growth. The proposed project is an expansion of an existing use and would not result in conversion of undeveloped lands to new urban uses, as the WWTP expansion would occur within the boundaries of the existing WWTP site. Surrounding lands in the City limits, as well as San Joaquin County, are located within the 100-year flood hazard area. This would limit the types of development that could occur on these lands in the future, further reducing any likelihood of land use compatibility conflicts stemming from WWTP expansion.

The outfall pipeline is proposed adjacent to existing roadways (Arbor Avenue, MacArthur Drive and Delta Drive) and within agricultural lands. The lands along the pipeline route are located within the 100-year flood hazard area and are designated for industrial, public services and agriculture in the UMP (City of Tracy, 1993a). Similarly, the San Joaquin General Plan designates lands along the pipeline route for General Agriculture with a zoning of AG-40 (General Agriculture, 40 acre minimum). As a result of these designations, as well as the presence of the 100-year floodplain, development in the project area is not expected to be substantial and would most likely be limited to continued agricultural use.

#### CUMULATIVE IMPACTS AND MITIGATION MEASURES

The proposed project would not result in direct cumulative impacts to land use because the expansion would occur within the boundaries of the existing site. The outfall pipeline would be located within existing roadway right-of-way or through agricultural lands and would follow essentially the same route as the existing outfall facility. As a result, the proposed project would not result in any significant cumulative impacts to land use.



The WWTP expansion would provide wastewater treatment to support a portion of development that is planned as part of the UMP. Cumulative land use impacts associated with buildout of the UMP have been previously examined in the UMP EIR (City of Tracy, 1993b). The proposed project would accommodate these uses and would not result in any new impacts to land use not previously addressed in the UMP EIR.

Indirect, or secondary impacts of the project relative to land use would also be considered less than significant because the project would accommodate planned development of lands within the UMP. Development of lands within the UMP has already been addressed in the UMP EIR (SCH. No. 91092060) (City of Tracy, 1993b). Therefore, cumulative land use impacts of the project would be **less than significant** and are discussed further in Section 7.0 (Growth-Inducing Impacts).

#### REFERENCES

- City of Tracy. 1993a. *City of Tracy Urban Management Plan/General Plan*. Tracy, California. July 19, 1993.
- City of Tracy. 1993b. *Final EIR for the City of Tracy Urban Management Plan/General Plan*. Tracy, California. July 19, 1993.
- City of Tracy. *Wastewater Master Plan*. July, 1994.
- San Joaquin County. 1992. *San Joaquin County General Plan 2010*. July, 1992.

**SECTION 4.2**  
**HUMAN HEALTH/RISK OF UPSET**

## 4.2 HUMAN HEALTH/RISK OF UPSET

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This section addresses the potential presence of hazardous materials and conditions within the project area, and analyzes the potential risk of such materials in proximity to proposed development and human activities.

### 4.2.1 EXISTING SETTING

#### EXISTING CONDITIONS

#### **Wastewater Treatment Processes**

The WWTP receives domestic and industrial wastewater that is treated to a secondary level. Solids are generated during the treatment process, dried on drying beds, and disposed at a landfill. The treated wastewater is discharged through an outfall into the Old River.

As part of the wastewater treatment process, effluent is chlorinated to kill pathogenic organisms and satisfy the discharge requirements for bacteriological quality. Chlorine solution made from chlorine gas is diffused into the clarified effluent as it exits the secondary clarifier. The chlorine contact basins then provide the contact time necessary to inactivate the coliform bacteria.

Since chlorine is harmful to aquatic life, the residual chlorine concentration in the disinfected effluent must be removed as required by the discharge permit. Prior to discharge the disinfected effluent is dechlorinated, a process in which a sulfur dioxide solution is added to neutralize the residual chlorine by forming nontoxic compounds.

Final effluent from the chlorine contact basins is then pumped 3.5 miles north to an outfall along Old River, where it is discharged through a diffuser submerged at a depth of approximately 9 feet.

Waste solids generated from the preliminary, primary, and secondary treatment processes are collected and conveyed to the solids handling facilities so the sludge can be conditioned for disposal. The sequence of solids handling facilities generally consists of thickening, digestion, and dewatering. Anaerobic digestion stabilizes the organic materials and reduces the volume of the sludge. The sludge is dewatered by applying it to sand drying beds. Liquid that separates from the solids either evaporates or seeps through the sand in the beds and is collected by an underdrain system and conveyed to the plant sewer pump station. The dried sludge is removed from the beds with a front-end loader and trucked to the Altamont foothills where the material is land applied.

Four holding ponds (two aerated and two overflow non-aerated) located north of Arbor Road are primarily used to provide treatment for excess industrial wastewater. Wastewater generated by Leprino Foods, the only remaining large industrial input to the plant, is currently treated in industrial clarifiers to remove floatable and readily settleable materials. Downstream of the clarifier, the industrial primary effluent can be combined during low-flow periods with the domestic primary effluent to continue with secondary treatment.

## 4.2 HUMAN HEALTH/RISK OF UPSET

An emergency storage pond receives partially treated wastewater not meeting discharge standards and overflows from the aerated holding ponds, providing additional holding volume and evaporation area. Wastewater diverted to the ponds is returned to the plant with losses to evaporation and percolation (CH2M Hill, 2001).

The treatment plant has a 16,000 kW gas turbine to provide backup power for all critical processes in the event of a power outage.

### Hazardous Materials Storage

Hazardous materials stored at the existing plant are listed in **Table 4.2-1**. The hazards potentially associated with these materials include fire, pressure release, explosion (high reactivity), and acute health problems from contact/ingestion, e.g., as a result of a spill. Two of the materials, chlorine and sulfur dioxide, are listed as extremely hazardous substances in the federal regulations and stored at the WWTP in excess of planning threshold quantities (40 Code of Federal Regulations [CFR] 355, Appendix A).

**TABLE 4.2-1  
HAZARDOUS MATERIALS STORED AT THE WWTP**

Material Name	Maximum Amount Stored	Storage Method	Potential Hazard
Chlorine gas	50,000 pounds	Tank inside building	Reaction, pressure release, acute health
Sulfur dioxide gas	40,000 pounds	Above-ground tank	Reaction, pressure release, acute health
Diesel fuel	8,000 gallons	Above-ground tank	Fire
Propane gas	250 gallons	Tank wagon	Fire, pressure release
Water-based paint	65 gallons	Cans	Acute health
Cationic polyacrylamide	110 gallons	Non-metallic drum	Acute health
Oxygen gas	822 cubic feet	Cylinder	Reaction, pressure release
Motor oil	770 gallons	Steel drum	Fire
Hydraulic oil	220 gallons	Steel drum	Fire
Gear oil	110 gallons	Steel drum	Fire
Anti-freeze	55 gallons	Steel drum	Fire, acute health
Waste oil	800 gallons	Above-ground tank	Fire
Acetylene gas	1,680 cubic feet	Cylinder	Fire, pressure release

### 4.2.2 REGULATORY FRAMEWORK

The following Federal and State laws and regulations are applicable to the project:

- Occupational Safety and Health Act (29 Code of Federal Regulations [CFR] 1910.119) and Process Safety Management of Acutely Hazardous Materials (California Code of

Regulations [CCR], Title 8, Section 5189) establish the requirements for the management of hazards associated with processes using highly hazardous chemicals. They establish procedures for process safety management that will protect employees by preventing or minimizing the consequences of chemical accidents involving highly hazardous chemicals.

- Hazardous Materials Release Response Plans and Inventory Law (California Health and Safety [HSC] Code, Article 2, Chapter 6.95, Sections 25500 et seq.) establishes the basic requirements for the State's community right-to-know program, including immediate reporting of releases and preparation of business plans for hazardous materials handlers.
- Risk Management Plans (RMPs) Clean Air Act, Section 112(r) (California HSC 25531-25541 and codified in California regulations as 19 CCR 2735.1-2785) establishes that facilities handling more than the threshold planning quantities of EPA-listed extremely hazardous substances are required to register formally with the local administering agency and submit an RMP upon request.
- Standards For The Use Or Disposal Of Sewage Sludge (40 CFR 503) requires the monitoring of municipal sewage sludge and prescribes disposal requirements for acceptable quality municipal sewage sludge (biosolids) for beneficial use in agriculture, horticulture, silviculture, and land reclamation activities.
- Discharge of Waste to Land (23 CCR 2510) establishes waste and site classifications and waste management requirements for waste treatment, storage, or disposal in landfills, surface impoundments, waste piles, and land treatment facilities.
- Oil Pollution Prevention (40 CFR 112) establishes procedures, methods and equipment and other requirements to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines primarily through the preparation and implementation of a Spill Prevention, Control and Countermeasure (SPCC) Plan.
- Uniform Fire Code Articles 79 and 80 include UFC spill prevention requirements to minimize the potential for uncontained spills. The code requires liquid-tight secondary containment sized to contain a breach of the largest storage tank and a 25-year, 24-hour storm event, safety and hazard signs, drainage and spill control provisions, containment area level monitoring, secondary source of power for electrical systems, and seismic protection.

### CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

**Table 4.2-2** includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

## 4.2 HUMAN HEALTH/RISK OF UPSET

**TABLE 4.2-2  
PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
Policy SA 1.3: Mitigate effects of flooding in the 100-year flood plain of the San Joaquin River.	Yes	The project does not impact the potential for flooding.
Action SA 1.3.2: Continue to implement flood plain Zoning Regulation overlay zones that comply with FEMA and control the types of structures and land uses permitted in areas deemed high risk. Require these structures be built in a manner that minimizes flood losses.	Yes	Expansion of the WWTP will not alter its exposure to flood risk.
Policy SA 2.1: Protection of the community and environment, through land use controls, site design, and public policy.	Yes	The project is designed in accordance with all applicable laws and regulations protective of human health and the environment.
Action SA 2.1.1: Land uses involved in the use, storage or production of hazardous materials shall be located a safe distance from other uses that may be adversely affected by such activities, based on input provided by San Joaquin County Office of Emergency Services and the Fire Department.	Yes	The expansion of the WWTP does not change existing land uses at the site or in its vicinity.
Action SA 2.1.2: Coordinate with San Joaquin County Office of Emergency Services in its maintenance of an inventory of businesses or facilities involved in the transportation, use or storage of hazardous materials.	Yes	The expansion of the WWTP does not change existing land uses at the site or in its vicinity.
Action SA 2.1.3: Regulate the storage, manufacturing and use of flammable, explosive or otherwise hazardous materials and develop standards addressing the transport of these materials within the subregion.	Yes	The expansion of the WWTP does not change existing land uses at the site or in its vicinity. See also Section 4.2.3, Accidental Release
Action SA 2.1.5: Support the efforts of all hazardous material shippers and users in reducing the threat to life or property as a result of the transportation, use, and storage of hazardous materials.	Yes	The expansion of the WWTP does not change existing land uses at the site or in its vicinity. See also Section 4.2.3, Accidental Release

### 4.2.3. IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

Hazardous materials are those that pose risks to human health and safety through, explosion, fire, inhalation/ingestion, bodily contact, etc. The project would have a significant impact if it:

- 1) Created a hazard to public health through the transport, use or disposal of hazardous materials;

- 2) Created a reasonably foreseeable upset and accident conditions involving the release of hazardous materials; or
- 3) Was placed within a 100-year flood hazard area so that it would impede or redirect flood flows.

### METHODOLOGY

Several documents were reviewed for information about the WWTP and governing regulations regarding emergency preparedness, including the City of Tracy UMP/General Plan (City of Tracy, 1993a), The Wastewater Treatment Plant Facilities Plan (CH2M Hill, 2001), sections of the Code of Federal Regulations, and various publications of the County of San Joaquin Office of Emergency Services. Additional information was obtained from Tracy WWTP operations personnel. A database search was conducted to identify known locations of potentially contaminated soils and groundwater in the vicinity of the construction areas at the WWTP and along the proposed outfall pipeline route. The results of the search are included in **Appendix B**.

### IMPACTS AND MITIGATION MEASURES

#### Accidental Release

Currently, gaseous chlorine is used at the WWTP facility for disinfection prior to discharge of the wastewater to Old River. Gaseous chlorine poses a risk to health and safety as the gas is transported through the community and is stored in large quantities at the WWTP. Symptoms of exposure include burning eyes, nose, and mouth; coughing and choking, nausea, vomiting, headaches, dizziness, pulmonary edema, hypoxemia (reduced oxygen in the blood), and frostbite. Regulatory restrictions are increasingly being imposed on treatment plants that use gaseous chlorine. Liquid sodium hypochlorite would result in lower health and safety risks compared to gaseous chlorine while providing a reliable disinfection system (CH2M Hill, 2001). The replacement of gaseous chlorine with liquid chlorine and the associated reduction of exposure risk by the public is a **beneficial impact**.

Sodium hypochlorite and sodium bisulfite (to be used for dechlorination of sodium hypochlorite), have some potential health and safety effects. Sodium hypochlorite is a corrosive solution containing chlorine that can be a severe irritant with burning effects on the body. Inhalation of concentrated fumes (such as from spills) can cause severe irritation of the mucous membranes. Sodium bisulfite is a corrosive material in the form of a salt. This chemical can be an irritant to the eyes, skin and mucous membranes. Sulfur dioxide gas is the only hazardous decay product of sodium bisulfite liquid. When released, the chemicals could cause harm to human health either by direct contact with the skin or the mucous membranes.

New sodium hypochlorite/bisulfite facilities at the Tracy WWTP must comply with the requirements of the 1997 Uniform Fire Code (UFC) (van Doner, pers. com., 2001) and the facility expansion will be designed to comply with these requirements (CH2M Hill, 2001),

## 4.2 HUMAN HEALTH/RISK OF UPSET

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including requirements for spill control, drainage, and secondary containment, fire protection, and design of valves, piping, and fittings, and chemical storage.

Furthermore, workers at the facility are trained in storing and using the chemicals, including the proper use of personal protective equipment. Workers will also be trained in spill prevention, according to the UFC, the facility's SPCC plan, and the California Health and Safety Code, Chapter 6.95. The City of Tracy Fire Department will conduct spill and release response upon notification of WWTP staff. Therefore, impacts associated with accidental release of chemicals are considered **less than significant**.

### Soil/Groundwater Contamination

The volume of sludge requiring dewatering would increase in association with expansion of the WWTP. After the sludge is thickened in the dissolved air floatation (DAF) unit and stabilized in the anaerobic digester, it is applied to sand drying beds for dewatering. Dewatering occurs through evaporation and leaching of water into the ground. Evaporation withdraws all water from the solids, leaving any contaminants in the sludge. Water leaching into the ground could potentially contain contaminants, such as metals, organic constituents, and nitrogen. However, metals and organic constituents remaining in the sludge are largely bound to the solids as a result of the thickening and stabilization processes in the DAF and digesters. Nitrogen could leach into the soil and groundwater, thus potentially affecting drinking water quality in wells that might be located near the WWTP. However, the City of Tracy pumps drinking water from an aquifer located 1,000 feet below ground level and the aquifer would not be impacted. Any water seeping below the drying beds will be captured through an underdrain system which conveys residual liquid to the plant sewer pump station to return it to the wastewater treatment train. Capturing the seepage water minimizes the potential that it reaches the aquifer and impacts nearby drinking water wells. Therefore, impacts are considered **less than significant**.

### Digester Gas

There will be an increase in the generation of digester gas as a result of increased flow to the treatment plant. A percentage of the gas would continue to be used to heat the sludge and sustain the digestion process. Current plans are to continue to burn off excess methane as waste gas. In the future, the City may choose to divert methane to the new digester building to generate electricity to offset electricity demands of the WWTP. Energy generating equipment would be permitted by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and would be operated in compliance with any permitting requirements. The use of the digester gas for energy generation in permitted equipment would minimize the potential for the risk of explosion. Therefore, the potential increase in risk of explosion as a result of increased digester gas production would be **less than significant**.

### Flooding

Reclamation districts and the Department of Water Resources (DWR) are responsible for maintenance of their respective levee systems. They establish levee patrols and will take

immediate action to correct levee problems. DWR also provides early flood warnings and information on river stages. Public safety agencies of San Joaquin County are responsible for ensuring public safety in the event of a flood and support the efforts of the reclamation districts to maintain levees and conduct evacuation and rescue operations if necessary.

The 1998/99 flood was classified as a 100-year storm event. The WWTP was not affected by this storm because the San Joaquin River separates into three separate channels east of the facility thus providing increased holding capacity for flood waters (Bayley, pers. com, 2001). As a result, the WWTP remained above the flood level and would not be affected by similar events. The new effluent outfall pipe would be underground and would not be affected by flood hazards. Therefore, the impact on the facility during a 100-year flood event is expected to be **less than significant**.

### Health and Safety Hazards from Construction

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact could be **potentially significant**.

Potential health and safety hazards associated with construction of the proposed improvements would generally be limited to the work site, and hazards to worker health and safety are expected to be greater than those to the general public. Health and safety hazards during construction include airborne contaminants, such as dust and volatile soil and groundwater contaminants, and noise from the operation of equipment. During construction of the expansion improvements, there would be additional vehicular and truck traffic causing dust, exhaust, noise, and increased use in hazardous substances such as paints, solvents, fuels, and welding gases. The greatest threat to worker health and safety would come from construction and excavation in areas previously contaminated through spills or leaking tanks.

To evaluate the potential for construction workers to be exposed to hazardous materials while trenching outside the plant property, an environmental database search was conducted to include a half-mile radius around the proposed pipeline route and an alternate route to the same outfall location. A search of Federal and State environmental databases was conducted by VISTA Information Solutions, Inc. These databases include:

- Comprehensive Environmental Response, Compensation, and Liability Information System list of sites that are either proposed for inclusion or are currently on the US EPA's National Priority List (NPL).
- The Cal-Sites database, maintained by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Site Mitigation Program. Two thirds of the sites in this database have been classified, based on available information, as needing "No Further Action" (NFA) by the DTSC. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site.

#### **4.2 HUMAN HEALTH/RISK OF UPSET**

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- Emergency Response Notification System (ERNS), a national database used to store information on the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party.
- The EPA's Resource Conservation and Recovery Act (RCRA), which identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. These facilities include large quantity generators, small quantity generators, and unclassified facilities. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.
- RCRA hazardous waste facilities that have conducted or are currently conducting a corrective action (CORRACTS).
- Leaking Underground Fuel Tank (LUFT) Information System provided by the California Environmental Protection Agency.
- The Solid Waste Inventory System provided by the Integrated Waste Management Board.
- The Cortese List – Hazardous Waste Substance Site List provided by the Office of Environmental Protection, Office of Hazardous Materials. The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California.
- Toxic Pits list of hazardous substances sites provided by the Water Quality Control Board.
- Facility Index System (FINDS), an inventory of all facilities that are regulated or tracked by the US EPA. Each FINDS record indicates the EPA Program Office that is responsible for the tracking of the facility.
- The Groundwater Site Inventory database, which contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used or documented during research.
- The State Water Resources Control Board, which provides a historical database containing information about both registered underground and above ground storage tanks.
- Toxic Release Inventory System (TRIS), which contains all facilities that manufacture, process, or import toxic chemicals in quantities in excess of 25,000 pounds per year.
- The Deeds Restrictions list, also know as the Border Zone Property List. It contains information concerning voluntary deed restrictions. These agreements are made with owners of property who propose building residences, schools, hospitals, or day care centers on property that is on or within 2,000 feet of potentially hazardous waste sites.

Within the half-mile radius, a number of other facilities were identified by the database service. However, the probability of environmental impacts to the pipeline alignments from the neighboring sites is considered low due to their relative distance from the WWTP property. The complete database output for both the preferred and alternate pipeline routes are presented in **Appendix B**. The following database search results are considered relevant to the proposed project.

The Tracy Wastewater Treatment Plant was listed in the LUFT and Cal-Sites (12 entries) databases spills or releases to the ground. The underground fuel tank at the plant was removed and investigations have been closed by the San Joaquin County Public Health Department (pers. comm., Bayley, 2001). The plant is currently using only aboveground storage tanks to store fuel. For the proposed outfall pipeline route, the records search identified Leprino Foods and orchard Supply Hardware as being directly on the pipeline route and being listed on one or more of the environmental databases. However, a windshield survey of the project site confirmed that these facilities are located south of the Tracy WWTP and are not on the proposed pipeline route.

*Mitigation Measures*

**MM 4.2.1** Prior to construction, coordination with property owners and regulators will confirm the presence of contaminants in the vicinity of the construction areas. If necessary, the location of structures to be constructed will either be moved, (e.g., the pipeline will be rerouted), or protection of worker health and safety would be maintained through adherence to state and federal occupational health and safety and hazardous waste standards. If hazardous materials are unexpectedly encountered during construction, work will be halted until regulatory agencies have been notified and permission has been obtained to proceed with construction.

In this case, adequate personal protective equipment will be used to protect worker health and safety and an appropriate disposal location will be identified for the contaminated soil.

*Timing/Implementation:* The measure will be implemented prior to, and if appropriate, during project construction.  
*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

Implementation of the above mitigation would reduce this impact to **less than significant**.

**Power Outage**

The WWTP plant might be affected by power outages as a result of the California energy crisis. However, the WWTP has sufficient back-up generator power to continue to operate all essential treatment processes during a power outage (S. Bayley, pers. com. 2001). Anticipated summer

## **4.2 HUMAN HEALTH/RISK OF UPSET**

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flow volumes would be treated to meet the treatment standard prior to discharge. Therefore, impacts from power outages are considered to be **less than significant**.

### **CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES**

#### **CUMULATIVE SETTING**

The cumulative setting for hazardous materials is limited to the areas surrounding the project site. The only other industrial site in the vicinity of the WWTP is the Leprino Foods cheese factory.

The assumed 2020 cumulative scenario used as a baseline for the project includes the buildout of all reasonably foreseeable projects within the Tracy Planning Area (TPA) and surrounding region. Development projects under the cumulative scenario are summarized in **Table 4.2-3** below. Additional information on these developments is available at the City of Tracy Department of Development and Engineering Services.

#### **CUMULATIVE IMPACTS AND MITIGATION MEASURES**

##### **Storage and Transport of Hazardous Materials**

Cumulative impacts would result if other planned projects in the vicinity of the WWTP included the addition of hazardous materials above planning thresholds (i.e., volumes triggering preparation of a hazardous materials business plan [HMBP] according to H & SC Sections 25500 et seq.). This would change the total amount of hazardous materials being transported over public roadways and stored near the WWTP location. None of the projects listed in **Table 4.2-3** are in the vicinity of the WWTP. Therefore, cumulative impacts to human health do not occur as a result of this project. This impact is considered **less than significant**.

**TABLE 4.2-3  
CUMULATIVE DEVELOPMENT ASSUMPTIONS**

<b>Specific Plans and PUDs</b>	<b>Level of Buildout Potential at 2025</b>
Residential Specific Plan (RSP)	100%
Industrial Specific Plan (ISP)	100%
I-205 Specific Plan (I-205)	100%
Infill	100%
Plan C	100%
Northeast Industrial (NEI)	100%
Elissagaray	100%
Lourence Ranch	100%
Presidio	100%
Filios	100%
Tracy Gateway	100%
Tracy Hills Specific Plan	100%
South Schulte Specific Plan	25% (Residential Only)
Castro	25%
Kagehiro	25%
Saddlebrook	25%
Moitoso II	25%
Soucheck	25%

### **Reduced Use of Chlorine Gas**

Liquid sodium hypochlorite (NaOCl) and sodium bisulfite (NaHSO<sub>3</sub>) will replace chlorine gas as disinfectant. The sodium compounds are liquid and accidental releases are easier contained and affect a smaller area than gaseous releases. This is considered a **beneficial impact** of the proposed project. None of the projects listed in **Table 4.2-3** are in the vicinity of the WWTP. Therefore, cumulative impacts to human health do not occur as a result of this project.

### **Increased Risk of Flooding**

The WWTP expansion project will not affect or redirect the flow of floodwaters in the area. None of the projects listed in **Table 4.2-3** are in the vicinity of the WWTP. Therefore, cumulative impacts to human health and flood risk do not occur as a result of this project.

## 4.2 HUMAN HEALTH/RISK OF UPSET

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**SECTION 4.3**  
**TRAFFIC AND CIRCULATION**

## 4.3 TRAFFIC AND CIRCULATION

The traffic and circulation section describes the potential traffic and circulation impacts associated with the proposed WWTP expansion project. The analysis focuses on potential impacts to the roadways and evaluates the project's consistency with the City of Tracy UMP/General Plan. The traffic analysis provided in this section is based on review of City of Tracy UMP/General Plan (City of Tracy, 1993), UMP EIR (City of Tracy, 1993), the most recent available Average Daily Traffic (ADT) from San Joaquin County, the City of Tracy Roadway Master Plan and windshield survey of affected roadways.

Based on the analysis provided in the Notice of Preparation, impacts related to the proposed project will be located primarily within the existing WWTP compound, with the exception of construction for the new discharge pipeline. The project is not expected to result in increased traffic hazards, conflict with alternative transportation opportunities, result in inadequate parking, or conflict with pedestrian or bicycle traffic. As impacts are not anticipated in these areas, they will not be discussed further in this EIR.

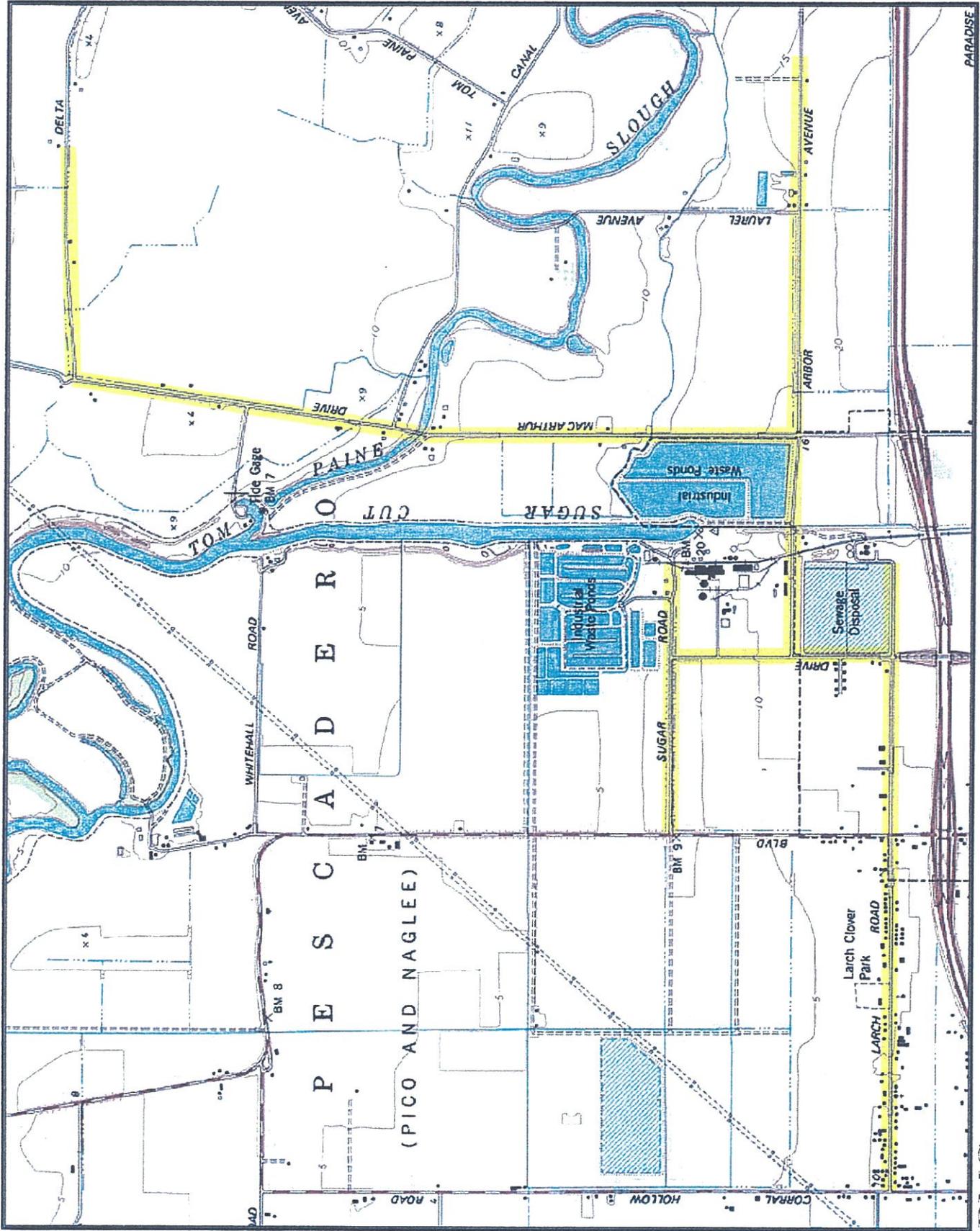
### 4.3.1 EXISTING SETTING

#### REGIONAL AND LOCAL ROADWAYS

Interstates 5, 205 and 580 provide regional roadway access to the Tracy Planning Area (TPA). The WWTP site, which is located at the corner of Larch Road and Holly Drive, within the northern portion of the City of Tracy UMP, has no direct freeway access. The majority of roadways that would be affected by construction of the outfall pipeline are located in San Joaquin County. ADT counts were obtained from the County for these roadways. Although some of the ADT counts are several years old, a windshield survey of the roadways revealed sparse traffic with no delays or congestion.

Within the project area, roadways are the primary existing transportation facilities. Because the area is dominated by agricultural and industrial uses, separate facilities for transit, bicycles, or pedestrians are non-existent. Local roadways in the project area are identified in **Figure 4.3-1**. These include the following:

- **Larch Road:** Larch Road extends east from Corral Hollow Road to the Union Pacific Rail Road line east of the WWTP. The City of Tracy Industrial Area Specific Plan designates Larch Road as part of a northern Truck Route surrounding the City of Tracy. Larch Road connects to Arbor Avenue via Holly Drive, and forms a section the northern east-west arterial of the Truck Route. Larch Road is lined with low-density residential development east of Holly Drive. ADT along Larch Road west of Tracy Boulevard was 2,650 trips based on the most recent count (10/2/95)



**FIGURE 4.3-1**  
PROJECT AREA ROADWAYS

Source: PMC

- **Holly Drive:** Holly Drive extends north from the center of Tracy to Sugar Road, where it ends. From Larch Road north to Arbor Avenue, it forms the western boundary of the existing WWTP. This same section of Holly Drive is designated by the City of Tracy Industrial Areas Specific Plan as part of a northern Truck Route surrounding the City, connecting Larch Road in the south to Arbor Avenue in the north. ADT along Holly drive north of I-205 was 1,182 trips based on the most recent count (10/1/75).
- **Arbor Avenue:** Arbor Avenue extends from Holly Drive in the west to east beyond MacArthur Drive. Arbor Avenue is designated in the City of Tracy Industrial Area Specific Plan as part of a northern truck route surrounding the City of Tracy and forms a section of the northern east-west arterial of the Truck Route between Holly Drive and MacArthur Drive. A segment of the conveyance pipeline will parallel Arbor Avenue from the WWTP eastward to MacArthur Drive. Traffic volumes along Arbor Avenue east of MacArthur Drive are very low (Chahal, pers. comm., 2001). The most recent ADT along this segment was 599 trips (6/1/81).
- **MacArthur Drive:** MacArthur Drive extends north from Tracy to beyond Arbor Avenue and forms the main north south arterial of a truck route surrounding the City. Exiting north from Interstate 205 provides access to the northern arterial of the truck route, which connects Arbor Avenue to Larch Road via Holly Drive. Continuing west on Larch Road, the truck route provides access to Interstate 205 via Tracy Boulevard. The proposed conveyance pipeline would parallel MacArthur Drive northward from Arbor Avenue to Delta Avenue. The most recent ADT along MacArthur Drive at Tom Paine Slough bridge was 414 trips (11/1/83).
- **Delta Avenue:** Delta Avenue extends east from MacArthur Drive to Paradise Road. This roadway is part of the TPA regional circulation. This roadway is entirely within the County and is a rural 2-lane roadway. A segment of the conveyance pipeline would parallel Delta Avenue eastward approximately 2,500 feet from MacArthur Drive before aligning north to Old River. Traffic volumes in this area of the County are low as the roadway is surrounded by agricultural lands and there is no urban development in the area. The most recent ADT on Delta Avenue west of Tom Paine Avenue was 208 trips (6/1/76).

### TRAFFIC SERVICE LEVELS

The operating conditions of roadway intersections and roadway segments are evaluated based on their measured "Level of Service." LOS is a qualitative measure of the quality of traffic operations based on delay, maneuverability, and driver discomfort. Potential intersection and roadway service levels vary from "A" (free-flow traffic conditions) to "F" (traffic volume equal to or greater than capacity).

The City of Tracy UMP/General Plan Action CI 2.3.1 establishes a level of service standard of "C" for City streets, except for streets and intersections within one-quarter mile of any freeway where the LOS standard is "D." The San Joaquin County Congestion Management Plan specifies

### 4.3 TRAFFIC AND CIRCULATION

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a LOS threshold of “D” for freeways with the exception of Interstate 205 for which it specified a LOS threshold of “E.” The San Joaquin County General Plan specifies an LOS threshold of “C” for county roadways and intersections (Chahal, pers. comm., 2001).

#### TRUCK ROUTES

Truck routes in and around Tracy utilize major arterials to direct truck traffic away from the downtown area and prevent conflicts with residential areas. North-south truck routes are located along Corral Hollow Road and MacArthur Drive and east-west truck routes are located along Grant Line Road, Linne Road, and Valpico Road. The new outfall conveyance infrastructure is proposed to be located within the right-of-way of MacArthur Drive.

#### 4.3.2 REGULATORY FRAMEWORK

##### SAN JOAQUIN COUNTY CONGESTION MANAGEMENT PLAN

The San Joaquin Congestion Management Plan (CMP) is a County program that provides growth management techniques, level of service standards, development of mitigation programs, transportation system management, and capital improvement programming for the purpose of minimizing the regional traffic impacts of development in the Tracy area. The CMP system includes Interstate 5 (I-5), I-205 and I-580, Eleventh Street, and Tracy Boulevard.

##### CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

**Table 4.3-1** includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project’s consistency with the UMP. The proposed project would be consistent with the relevant policy below:

**TABLE 4.3-1  
PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

<b>Urban Management Plan Goals, Policies and Actions</b>	<b>Consistency with UMP</b>	<b>Analysis</b>
<b>Policy CI 2.3</b> Levels of Service should meet the city standard on major streets and intersections within the Urban Management Plan Area.	Yes	The proposed project would result in an insignificant increase in the volume of traffic going to the WWTP on a daily basis.

##### CITY OF TRACY ROADWAY MASTER PLAN

The Roadway Master Plan identifies roadway improvements required to support long-term City build-out under the UMP and includes roadway improvement standards such as alignments, cross-sections, intersection and roadway design, and a roadway classification system based on anticipated volumes.

4.3.3 IMPACTS AND MITIGATION MEASURES

The section begins by describing the thresholds for determining when an impact is considered significant, followed by a description of the analysis methodology. The final subsection of the analysis presents specific impacts related to the proposed project and mitigation measures to reduce impacts.

The proposed project would have a significant impact if :

- 1) LOS "C" for City roadways, (except for intersections within one-quarter mile of a freeway, where the standard is LOS "D") would be exceeded, or if the project would require an expansion of the roadway facility capacity beyond what is required to support development under baseline and cumulative conditions.
- 2) LOS "C" for County roadways and intersections would be exceeded.
- 3) Implementation of the project would cause a significant percent of traffic capacity to be added between the baseline roadway system and the cumulative roadway system. The percent is significant if the project generates more than 4 percent of the cumulative use added between the baseline development condition and the cumulative development condition.
- 4) Project construction caused damage to project area roadways beyond that caused by the normal wear and tear of existing traffic; or
- 5) Project construction disrupted traffic patterns on project area roadways causing traffic delays or unsafe roadways.

METHODOLOGY

Evaluation of potential traffic impacts of the proposed project was based on review of the UMP, the Roadway Master Plan, associated environmental documents, available traffic data and a field review of the project area.

PROJECT IMPACTS AND MITIGATION

**Roadway Level of Service and Construction Impacts**

Construction activities associated with implementation of the WWTP expansion may result in a temporary increase in traffic on existing roadways near the project site including Arbor Avenue, MacArthur Drive and Delta Avenue. The segment of Arbor Avenue affected by the project is located within the City limits as is a portion of MacArthur Drive. However, the northern portion of MacArthur Drive to Delta Avenue, as well as Delta Avenue, is located in San Joaquin County. As rural two-lane highways, Arbor Avenue, MacArthur Drive and Delta Avenue are not typically subject to high traffic volumes. According to the UMP EIR (City of Tracy, 1993b), rural highways are considered to operate at LOS C or better if their average daily traffic capacity is 9,400; LOS D if average daily traffic capacity is 15,000 and LOS E or F if average daily traffic

### 4.3 TRAFFIC AND CIRCULATION

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capacity is 24,200. According to staff at the County, the segments of roadway along the proposed pipeline are estimated to be operating at LOS C or better (Chahal, pers. comm., 2001). Land uses surrounding these roads are industrial and predominantly agricultural. As a result, the land uses are not high-volume traffic generators.

Area intersections and roadways may also be impacted during construction at the WWTP site and installation of the proposed pipeline (parallel to the existing underground pipeline along MacArthur Drive north of Arbor Avenue). Although construction trip information is not available, it is unlikely that construction traffic and activities would significantly reduce LOS as the affected roadways are all surrounding by either industrial or agricultural uses with some scattered rural residences. Further, installation of the pipeline would occur over a period of months and then be completed. As such, this impact is only temporary and traffic conditions would return to normal upon completion of the project. Therefore, impacts to roadway levels of service associated with construction are considered **less than significant**.

#### Roadway Level of Service/Operational Impacts

Traffic volumes associated with the WWTP currently amount to approximately 10,100 annually. These trips consist of biosolids hauling (100 trips once per year), one chemical delivery per week (approximately 48 trips annually), 2 general deliveries per day (600 annually) and 20 employee trips per day (20 employees 4 days a week for 50 weeks out of the year/4,000 trips). Other trips include 20 city maintenance trips a day (4 days a week for 50 weeks), and 3 trips a day for residents/dumpers using the septic dump station (approximately 1,000 per year). When in operation, Leprino Foods pretreatment requires staffing which generates approximately 365 employee trips (Bayley, pers. comm., 2001).

Following expansion, the number of trips to the WWTP would most likely double for most activities including biosolids hauling (200 trips once per year), 2 chemical delivery trips per week (96 annually), 4 general delivery trips per day (1,200 annually) and the 6 trips per day to the septic dump station (2,000 per year). No change in the number of trips for Leprino foods is anticipated. The proposed expansion of the WWTP is assumed to require 7 new employees to operate and maintain the additional facilities (Bayley, pers. comm., 2001). This would result in an increase of 1,400 trips annually, or 7 additional employee trips per day (27 employees 4 days a weeks for 50 weeks = 5,400 trips). Similarly, city maintenance trips would add approximately 2,000 trips annually (15 vehicles twice per day 4 days a week for 50 weeks = 6,000).

Thus, the increase in traffic would result in approximately an 18 percent increase in traffic trips to the WWTP site. Approximately 100 of the additional trips would be required to remove the accumulation of stockpiled biosolids. However, because hauling occurs on the weekend, high traffic volumes that typify weekday levels are avoided. All trucks leave the site from Larch Road with the majority heading west to Tracy Boulevard to I-205. Local trips (e.g. UPS and Federal Express) may turn on Holly Drive instead of continuing west to Tracy Boulevard and I-205. Increased traffic volumes along Larch Road and Holly Drive are not anticipated to substantially worsen existing conditions as these roadways are surrounded with rural, industrial and agricultural lands. Further, it should be noted that routine trips to the site associated with its operation and maintenance would not all occur during the a.m. and p.m. peak hour when traffic

volumes are highest on both City and County roadways as well as I-205. Thus impacts of the project to roadway levels of service and operations are considered **less than significant**.

**Access Limitations/Roadway Damage**

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

During construction, a variety of heavy equipment would be used for earthmoving, excavation and paving. This equipment would be transported along roadways surrounding the project site as well as along the outfall conveyance pipeline route (i.e. Arbor Avenue, MacArthur Drive and Delta Avenue). Transport of equipment could cause pavement to crack and/or create potholes on City and County maintained roadways. While construction traffic is expected to be temporary and minor and would not substantially impact levels of service, construction activities could restrict access along these roadways. Arbor Avenue, MacArthur Drive and Delta Avenue are the sole access roadways for several residences in the project area. As a mitigation measure, the City should develop a traffic control plan in order to direct traffic through construction areas. However, this plan should be developed prior to commencing with construction activities.

*Mitigation Measures*

**MM 4.3.1a** The City shall ensure that area roadways damaged by the project are returned to pre-project conditions:

*Timing/Implementation:* *Prior to commencement of construction, and following completion of construction.*

*Enforcement/Monitoring:* *City of Tracy Department of Development and Engineering Services, San Joaquin County Department of Public Works.*

**MM 4.3.1b** The construction contractor shall notify, as appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Public Works Department, Road Maintenance Division about the schedule for project construction as soon as project approvals are received. The purpose of this notification will be to postpone any planned roadway resurfacing and/or improvement projects in the project area and coordinate such improvements projects with project construction schedule.

*Timing/Implementation:* *Following project approval.*

*Enforcement/Monitoring:* *City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works and San Joaquin County Department of Public Works.*

### 4.3 TRAFFIC AND CIRCULATION

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**MM 4.3.1c** The construction traffic control plan shall include appropriate measures for traffic control such as methods for signage, partial lane closures, and restrictions on commute-hour construction. As appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works or San Joaquin County Public Works Department, Road Maintenance Division, will ensure access for residences along Arbor Avenue, MacArthur Drive and Delta Avenue is maintained during construction activities. The City of Tracy Department of Public Works or San Joaquin County Public Works Department, Road Maintenance Division shall provide noticing to the City of Tracy Police Department, San Joaquin County Sheriff Department and the Tracy Fire Department.

*Timing/Implementation:* Prior to commencing construction.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Department of Public Works.

**MM 4.3.1d** The construction contractor shall repair any project-related roadway damage, including new overlays on affected roadways.

*Timing/Implementation:* Immediately following the completion of construction.

*Enforcement/Monitoring:* City of Tracy Department of Public Works, San Joaquin County Department of Public Works.

Implementation of the above mitigation measure will reduce this impact to **less than significant**.

#### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

##### **Cumulative Setting**

The cumulative setting for traffic includes buildout of the UMP. Total ADT associated with buildout of the UMP is projected to be 1,541,000 with 9,075,000 total vehicle miles traveled within the TPA (City of Tracy, 1993b). All of I-205 from the junction of I-580 to the junction of I-5 would experience severe congestion and operate at LOS E/F even assuming I-205 would be widened to 8 lanes by the year 2012. With development of the UMP, the share of I-205 traffic with either an origin or a destination in Tracy would increase to 61 percent. This substantial increase would be attributed to an increase in employment opportunities associated with the development of industrial land uses in the UMP.

##### **Impacts and Mitigation Measures**

At buildout, the UMP projects an ADT of 158,030 on I-205 between Tracy Boulevard and MacArthur Drive (City of Tracy, 1993b). The proposed expansion of the WWTP would add approximately 2,250 additional trips to the plant each year. Assuming all of these trips used I-

205 (worst case scenario), this would result in approximately a 1 percent increase in traffic volumes to this segment of I-205. This is **less than significant** for the project's contribution to cumulative impacts. Significant and unavoidable cumulative traffic impacts to freeways as a result of development of the TPA under the UMP were addressed in the UMP EIR (SCH. No. 91092060). Findings of Fact and a Statement of Overriding Considerations were adopted by the City (Resolution 93-226).

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**SECTION 4.4**  
**NOISE**

This section describes the existing setting and identifies potential noise impacts associated with the proposed expansion of the Tracy Wastewater Treatment Plant (WWTP).

### 4.4.1 EXISTING SETTING

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals) as a point of reference defined as 0 dB (Note: A summary of noise terminology and definitions is contained in **Appendix C** of this document). Other sound pressures are then compared to the reference pressure and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by the A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels.

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level ( $L_{eq}$ ), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The  $L_{eq}$  is the foundation of the composite noise descriptor,  $L_{dn}$ , and shows very good correlation with community response to noise.

The Day-night Average Level ( $L_{dn}$ ) is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.).

The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because  $L_{dn}$  represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

### EXISTING LAND USES IN THE PROJECT VICINITY

The existing WWTP site, which is also the location of the proposed expansion (exclusive of the outfall pipeline), is bordered by Holly Drive to the west, Arbor Avenue to the north, Larch Road to

#### 4.4 NOISE

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the south, and agricultural fields to the east. In general, the site is surrounded by agricultural and commercial/industrial uses.

The only identified noise-sensitive receptors in the general project vicinity consist of the caretaker residence of the AAA Mini Storage facility, which is located on the south side of Larch Road directly opposite the entrance to the WWTP, and a ranch-residential dwelling at the southeast corner of Larch Road and Holly Drive. In addition, there are rural residences located along portions of MacArthur Drive and Delta Avenue that may be affected by noise associated with the proposed new outfall pipeline construction.

##### EXISTING NOISE ENVIRONMENT IN THE PROJECT VICINITY

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on nearby Interstate 205, and to a lesser extent by local traffic and agricultural operations. The noise generation of the WWTP is quite low, and was found to be audible only near the front of the facility on Larch Road. Even at that location, Interstate 205 traffic was identified as the dominant noise source. According to WWTP staff, because the headworks are mostly enclosed, the noise emissions of the facility consist mainly of the sound of effluent flow. The emergency generator located at the WWTP is similarly enclosed, with only the muffler protruding to the exterior of the building.

According to the nearest resident to the project site, the caretaker of the AAA Mini Storage facility located 75 feet from the main entrance of the WWTP (McBrian, pers. comm., 2001), the sound generation of the WWTP is very faint and has never been a source of concern. The caretaker was unaware of any appreciable changes in noise when the emergency generator at the WWTP was in operation.

To generally quantify the existing ambient noise environment in the project vicinity, a short-term ambient noise level measurement survey was conducted at four locations surrounding the project site on the afternoon of April 24, 2001. Noise measurements were also conducted at positions surrounding the emergency generator. A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the noise level measurement survey. The meter was calibrated before and after use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

The noise level measurement survey results are provided below in **Table 4.1-1**. The ambient noise monitoring survey revealed that ambient noise levels in the immediate project vicinity were relatively low, despite the proximity to the WWTP.

**TABLE 4.4-1  
 AMBIENT NOISE MONITORING RESULTS  
 WWTP SITE VICINITY - APRIL 24, 2001**

Site	Location	Average (Leq)	Maximum (Lmax)	Noise Sources
1	WWTP Site Entrance – Larch Road	51	67	I-205 dominant, WWTP faint
2	Corner Larch Road & Holly Drive	54	71	I-205 & local traffic - WWPT Inaudible
3	Corner Holly Drive & Arbor Avenue	50	68	Local traffic - WWPT Inaudible
4	Corner Arbor Drive & MacArthur Drive	51	64	I-205 & local traffic
5	Positions 150 ft. from Generator	65-70	65-75	Generator in normal operation

Source: *Bollard & Brennan, Inc. 2001*

#### 4.4.2 REGULATORY FRAMEWORK

##### CITY OF TRACY GENERAL PLAN GOALS, POLICIES, AND ACTIONS

Table 4.4-2 includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

**TABLE 4.4-2  
 PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Goal NO 3: Promote the Control of Noise Between Uses</b> Utilize the City of Tracy Noise Ordinance to control noise between land uses after planning activities have ended.	Yes	The City of Tracy Noise Ordinance standards were utilized for the assessment of project-related noise impacts at the nearest noise-sensitive areas.
<b>Policy NO 3.1:</b> Establish the maximum permitted noise levels at property lines to minimize impact on adjacent land uses.	Yes	The proposed project is not predicted to exceed the City of Tracy Municipal Code Noise Ordinance exterior noise level standards at the nearest potentially affected noise-sensitive land uses.

#### Tracy Municipal Code Noise Ordinance Section 4-3.1004. - Exterior Noise Standards

Except for exempted activities and sounds or exempted properties, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level at any point on or beyond the boundaries of the property in the applicable Base Zone District on which the sound is produced exceeds the applicable limits set forth below (see Table 4.4-3).

## 4.4 NOISE

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**TABLE 4.4-3  
GENERAL SOUND LEVEL LIMITS  
(MEASURED IN HOURLY AVERAGE LEQ AT THE PROPERTY LINE)**

<b>Base Zone District</b>	<b>General Sound Level Limits</b>
Residential	55
Commercial	65
Industrial	75
Agricultural	75

*Source: City of Tracy Municipal Code, Section 4-3.1004*

Noise from the WWTP Expansion project is not projected to exceed the **Table 4.4-3** standards applicable to residential uses (the most restrictive standard of 55 dB) at any of the nearest residences to the project site, regardless of whether those nearest residences are located within a Residential Zone District or not. Therefore, the project would be consistent with the exterior noise standards of the Tracy Municipal Code Noise Ordinance.

### **Tracy Municipal Code Noise Ordinance Section 4-3.1006. - Joint Boundaries**

When property lines form the joint boundary of two (2) base district zones, the sound level limit shall be the arithmetic mean of the limit applicable to each of the two (2) zones.

Due to the interface of different zone districts, the actual noise level standard applicable to the proposed project would be higher than the level applied to residential districts under Section 4-3.1006. Nonetheless, the project's noise emissions are not predicted to exceed even the most restrictive 55 dB Leq standard at the nearest residences to the WWTP project site. Therefore, the project would be consistent with the joint boundaries standards of the Tracy Municipal Code Noise Ordinance.

### **San Joaquin County Noise Criteria**

Phase 2 of the proposed WWTP expansion includes the construction of a new outfall pipeline in San Joaquin County. Section 9-1025.9(c)(3) of the San Joaquin County Code states that noise associated with construction shall be exempt from the noise provisions of the chapter provided such activities do not take place before 6 am or after 9 pm on any day. The construction activities associated with the outfall pipeline installation would fall into this category.

For stationary noise sources, such as the ongoing operation of any pumps which would be located along the outfall pipeline in the County, the standards contained in Table 9-1025.9 of the County Code would apply. Specifically, such pumps and related equipment shall not generate average noise levels in excess of 50 dB Leq during daytime hours, and 45 dB Leq during nighttime hours, at any noise-sensitive outdoor activity areas. That table also establishes maximum noise level standards of 70 dB Lmax and 65 dB Lmax during day and nighttime periods, respectively.

### 4.4.3 PROJECT IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

CEQA Guidelines, the City of Tracy General Plan Noise Element and the City of Tracy Municipal Code Noise Ordinance have been used to establish the standards of significance for evaluating noise impacts. Implementation of the project would result in significant noise impacts if the project would result in any of the following:

- 1) Exposure of persons to or generation of noise levels in excess of standards established in the Tracy Municipal Code Noise Ordinance, or applicable standards of other agencies;
- 2) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- 3) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

#### METHODOLOGY

Noise measurement results and existing acoustical literature were used to evaluate potential noise impacts associated with project-related construction and operation. Specific noise sources evaluated in this section include construction related equipment and on-site noise sources associated with the operation of the facility. Potential noise impacts of each of these major noise sources are described below.

#### Construction Noise Impact Assessment Methodology

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in **Table 4.4-4**, ranging from 85 to 90 dB at a distance of 50 feet.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to the construction sites. This noise increase would be of short duration and would likely occur primarily during daytime hours.

**TABLE 4.4-4  
CONSTRUCTION EQUIPMENT NOISE**

Type of Equipment	Maximum Level, dB at 50 feet
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

Source: Cunniff, 1977.

## 4.4 NOISE

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### WWTP Expansion Noise Impact Assessment Methodology

As previously stated, the noise emissions of the existing WWTP are fairly low and are substantially masked at the WWTP property lines by existing local and distant traffic noise (primarily I-205).

Because most of the existing and proposed heavy equipment would be enclosed, prediction of noise levels on a macroscopic level would be unnecessarily onerous and would likely lead to uncertain results. Therefore, the increase in noise associated with the expansion was estimated mathematically by comparing existing and proposed ultimate capacities of the WWTP. More specifically, the project-related noise level increase was estimated by the following formula:

Noise Increase =  $10 * \text{Log}_{10} (\text{Proposed Capacity} / \text{Existing Capacity})$ , or:

Noise Increase =  $10 * \text{Log}_{10} (16 \text{ mgd} / 9 \text{ mgd})$ , which reduces to

Noise Increase = 2.5 dB

The results of the ambient noise level survey described above indicate that existing noise emissions of the WWTP are low and that they are substantially masked by existing traffic noise. In fact the facility was inaudible over background traffic noise levels at all of the measurement sites except the site directly in front of the facility entrance on Larch Road. Even at that location, the WWTP noise emissions were masked by I-205 traffic noise.

Based on the noise measurement results, it was concluded that existing WWTP noise levels are well below 50 dB at the facility property lines, including the operation of the emergency generator, and that these levels are likely to continue following facility expansion.

### IMPACTS AND MITIGATION MEASURES

#### Operational Noise Impacts Associated with the WWTP Expansion

Existing and projected future noise emissions from the WWTP are predicted to be approximately 50 dB  $L_{eq}$  or less at the site boundaries and considerably masked by traffic noise. Noise generated by mechanical equipment (pumps, motors, emergency generators, fans, etc.) is predicted to result in an increase over existing facility noise emissions of approximately 2.5 dB. However, overall facility noise emissions are predicted to be well within compliance of the Tracy Noise Ordinance standards following the facility expansion. In addition, the potential 2.5 dB increase associated with the facility expansion is not predicted to translate into a 2.5 dB increase in overall ambient noise levels in the project vicinity primarily due to masking by existing traffic noise. As a result, noise impacts associated with the WWTP expansion are considered **less than significant**.

### Construction Noise Impacts

**Impact 4.4.1:** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

Activities involved in construction would typically generate maximum noise levels ranging from 85 to 90 dB at a distance of 50 feet. Construction activities would likely be temporary in nature and are anticipated to occur during normal daytime working hours. Nonetheless, construction noise could result in temporary significant noise level increases at noise-sensitive land uses in the immediate project vicinity.

#### *Mitigation Measures*

**MM 4.4.1** Where construction activities would occur within close proximity to noise-sensitive receptors, those activities should adhere to the requirements of the Tracy Municipal Code and San Joaquin County with respect to hours of operation, muffling of internal combustion engines, and other factors which affect construction noise generation and its effects on noise-sensitive land uses.

*Timing/Implementation:* Prior to approval of improvement plans.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Planning/Community Development Department.

Implementation of MM 4.4.1 would reduce construction noise impacts to **less than significant**.

### Operational Noise Impacts Associated with Pump Equipment

**Impact 4.4.2** Noise generated by mechanical equipment (pumps) located along the outfall pipeline could result in noise levels which exceed the San Joaquin County Code noise policies at residences located near such equipment. Therefore, this is considered a **potentially significant** impact.

Noise emissions of pumps are highly variable, so it is not feasible to precisely predict the degree of noise impact which may result from their operation. As a result, the potential for noise impact from the pump operation exists, and mitigation measures should be incorporated in the project design to ensure compliance with County noise standards and to prevent adverse public reaction to the pump noise.

## 4.4 NOISE

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### *Mitigation Measures*

**MM 4.4.2** All pumps and related equipment which is to be located along the new outfall pipeline shall be enclosed or located far enough from existing noise sensitive areas so as to result in noise levels below the County noise standards at the outdoor activity areas of the receiving land uses.

*Timing/Implementation:* Prior to approval of final engineering drawings.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Planning/Community Development Department.

## CUMULATIVE SETTING IMPACTS AND MITIGATION MEASURES

### CUMULATIVE SETTING

The cumulative noise environment for the proposed project is defined primarily by traffic on Interstate 205 and roadways surrounding the project site. To a lesser extent, operational noise at the WWTP and agricultural operations on surrounding lands also contribute to the noise environment in the project area. Lands surrounding the project site are designated for development as light industrial and continued agricultural use in the UMP. The development of light industrial uses would increase noise levels in the project area primarily through the addition of traffic and to a lesser degree through operations.

### CUMULATIVE IMPACTS AND MITIGATION MEASURES

As described in the existing noise setting, the proposed project is not anticipated to exceed noise standards. The surrounding areas are currently agricultural and industrial uses. Future uses include light industrial in addition to the continuance of agricultural operations. Neither of these uses is considered noise sensitive. Residences are not currently affected by noise from the WWTP. Further, existing residences in the area would not be adversely affected by operational or traffic noise from the plant following expansion. Construction noise would be temporary and not result in a long-term increase in cumulative noise levels. Further, mitigation is provided to reduce noise impacts associated with construction noise. Therefore, cumulative noise impacts are considered **less than significant**.

**REFERENCES**

Bollard & Brennan, Environmental Noise Analysis, Wastewater Treatment Plant Expansion Project. April 26, 2001.

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Tracy, City of. *City of Tracy Urban Management Plan/General Plan*. Tracy, California. July 1993.

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**SECTION 4.5  
AIR QUALITY**

This section describes the evaluation of local and regional air quality impacts from the construction and operation of the proposed project. The topics discussed in this section include a description of the existing setting (e.g., topography, climate and ambient air quality); a discussion of the regulatory framework and of air quality standards including standards of significance; potential air quality impacts resulting from the construction and operation of the proposed project; and a description of the mitigation measures proposed to reduce significant impacts.

### 4.5.1. EXISTING SETTING

#### TOPOGRAPHIC CONSIDERATIONS

The City of Tracy lies in the northwestern portion of the San Joaquin Valley in the area designated as the San Joaquin Valley Air Basin by the California Air Resources Board (CARB). Tracy is located near the eastern foothills of the Diablo Range. Air circulation and dispersion patterns are influenced by the Diablo Range at this location. Temperature inversions, which can occur any time during the year, trap air pollution within the Valley against the foothills, thereby preventing the vertical dispersal of air pollutants. The nearest residential areas are in the City of Tracy, located approximately 500 feet to the south and west of the treatment plant; scattered farmhouses are located to the north and east.

#### CLIMATE

The climate along much of the west coast of the United States is controlled by a semi-permanent high-pressure system that is centered over the northeastern Pacific Ocean. Locally, the Tracy climate is Mediterranean, with hot, rainless summers and cool, moist winters. The mean high temperature in Tracy during July is 93.8 degrees Fahrenheit and during January is 54.1 degrees Fahrenheit. Summer nighttime temperatures usually drop to the low sixties, resulting in summer daily temperature ranges of as much as 35 degrees. Freezing temperatures often occur on winter nights, rising to the low fifties during the days.

The prevailing winds during the summer are from the north and west. These winds, known as "up-valley winds", originate with coastal breezes that enter the valley through breaks in the Coast Ranges, particularly the Carquinez Straits in the San Francisco Bay area (Tracy, 1993). Predominant wind flow patterns in winter (December through February) are from the south and east (CARB, 1984). Wind direction and speed are the primary determinants for horizontal dispersion patterns (Tracy, 1993). Atmospheric stability and mixing heights are important parameters in evaluating potential pollutant dispersion. Less atmospheric stability and more turbulence result in more mixing and dispersion of air pollutants. The frequent occurrence of temperature inversions, as mentioned above, limits vertical mixing and the subsequent dilution of air pollutants.

## 4.5 AIR QUALITY

### AMBIENT AIR QUALITY

Air quality data for this analysis were obtained from the CARB Almanac, 1999. These data represent ambient conditions at the air quality monitoring stations closest to the proposed project (Tracy-24371 Patterson Pass Road and Stockton-Hazelton Street monitoring sites). This section describes the existing air quality for the following criteria pollutants: carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone, and particulate matter less than 10 microns (PM<sub>10</sub>). The maximum monitored concentrations of these air pollutants in the vicinity of Tracy are summarized in Table 4.5-1 (CalEPA).

Cold temperatures and calm conditions combine in the winter to increase the likelihood of high CO concentrations. Cold temperatures lead to increased CO emissions from automobile fuel combustion, and calm conditions allow these emissions to become concentrated near local sources rather than being dispersed by winds (City of Tracy, 1993). The annually averaged data from air quality monitoring stations located in San Joaquin County, however, indicates that the state 8-hour CO standard of 9 parts per million (ppm) has not been exceeded since 1992. The highest concentration measured since data collection began in 1980 was 12.9 ppm in 1987. Local concentrations are well below the state 1-hour standard of 20.0 ppm.

**TABLE 4.5-1  
AIR POLLUTANTS IN THE SAN JOAQUIN VALLEY AIR BASIN**

<b>Ozone<sup>1</sup></b>		<b>ppm</b>
Maximum 1-Hour Concentrations		0.116
Maximum 8-Hour Concentrations		0.094
Number of Days Standard Exceeded		<b>Days</b>
Above State 1-Hour		14
Above Federal 1-Hour		0
Above Federal 8-Hour		5
<b>PM<sub>10</sub><sup>2</sup></b>		<b>ug/m<sup>3</sup></b>
Maximum 24-Hour Concentration		98
Annual Arithmetic Mean		29.7
		<b>Days</b>
Days Above State 24-Hour Standard		8
Days Above Federal 24-Hour Standard		0
<b>Carbon Monoxide<sup>3</sup></b>		<b>ppm</b>
Maximum 1-Hour Concentrations		11.3
Maximum 8-Hour Concentrations		7.8
Peak 8-Hour Indicator <sup>4</sup>		6.2
Number of Days Standard Exceeded		<b>Days</b>
Above State 8-Hour		0
Above Federal 8-Hour		0
<b>Nitrogen Dioxide<sup>3</sup></b>		<b>ppm</b>
Maximum 1-Hour Concentrations		0.106
Maximum Annual Average		0.015
Peak 8-Hour Indicator <sup>4</sup>		0.103

Source: CARB

## Notes to Table 4.5-1

1. Ozone air quality data taken from Tracy-24371 Patterson Pass Road Monitoring Site, 1998
2. PM<sub>10</sub> air quality data taken from Stockton-Hazelton Street Monitoring Site, 1997
3. Carbon Monoxide and Nitrogen Dioxide air quality data represent the 1999 annually averaged data from the air quality monitoring stations located across San Joaquin County
4. The peak indicator represents the maximum concentration expected to occur once per year.

Smog is a major air pollution problem during the summer months. The primary constituent of smog is ozone. Therefore, ozone and its precursors are a focus for local air management efforts. Ozone is not emitted directly into the atmosphere; rather, it is formed from precursor elements [reactive organic gases (ROGs) and NO<sub>x</sub>] in the presence of sunlight. High ozone concentrations most often occur during hot summer days (City of Tracy, 1993). Ozone levels have fluctuated since monitoring began in 1980 and peaked in 1987. Annually averaged monitoring results from the air quality monitoring stations located in San Joaquin County indicated exceedances of the state standard on twenty-six days during 1996, and six days in 1997 (CalEPA).

Ozone often affects areas downwind from the original source of the precursor emissions. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas. San Joaquin County is occasionally influenced by precursors emitted in the San Francisco Bay Area; however, sources within the Valley are considered to be a greater influence under most conditions. The San Francisco Bay Area Air Basin (SFBAAB) is designated a "significant" source of ozone precursors to the San Joaquin Valley Air Basin on some days and an "inconsequential" source on other days. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions (City of Tracy, 1993).

Overall, the emission levels in the San Joaquin Valley Air Basin have been decreasing since 1985, with the exception of PM<sub>10</sub> emissions. The decreases are predominantly due to motor vehicle emission controls and reductions in evaporative and fugitive emissions from stationary sources. On-road motor vehicles are the largest contributors to CO and NO<sub>x</sub> emissions in the San Joaquin Valley. On-road motor vehicles, area-wide sources, and stationary sources are all significant contributors to ROG emissions. A significant portion of the stationary source ROG emissions is fugitive emissions from the extensive oil and gas production operations in the lower San Joaquin Valley. PM<sub>10</sub> emissions are primarily composed of fugitive dust from paved and unpaved roads and agricultural operations (CalEPA).

## 4.5.2 REGULATORY FRAMEWORK

### AIR QUALITY STANDARDS

#### Federal

National air quality policies are regulated through the Federal Clean Air Act of 1970 (FCAA). Pursuant to this act, the U.S. Environmental Protection Agency (EPA) established national ambient (meaning, a concentration at which a pollutant is known to cause adverse health effects

## 4.5 AIR QUALITY

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to sensitive groups within the population) air quality standards (NAAQS) for the following air pollutants (termed “criteria” pollutants): carbon monoxide (CO), ozone, nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter less than 10 microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and lead (Pb). The act was amended in 1977 to require each state to maintain a State Implementation Plan (SIP) for achieving compliance with the NAAQS (CH2M HILL, 1996). The Air Quality Standards are by law set at a level that protects public health and welfare and allows an adequate margin of safety. The FCAA classifies air basins as attainment or nonattainment areas. FCAA state that attainment areas meet the national primary or secondary ambient air quality standards for the pollutant and nonattainment areas do not meet, or contribute to ambient air quality in a nearby area that does not meet, the standards for the pollutant.

### State

Air quality in California is regulated by the California Air Resources Board (CARB), multi-county Air Quality Management Districts (AQMDs), and single-county Air Pollution Control Districts (APCDs). For the City of Tracy, the local agency is the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD). CARB designates nonattainment areas as those with at least one violation of a state standard for a specific pollutant and attainment areas as those with no violations of the state standard for a specific pollutant at any monitoring site within the designated area during a three-year period. The regional and local air quality agencies are primarily responsible for regulating stationary and indirect source emissions and for monitoring ambient pollutant concentrations (City of Tracy, 1993). Criteria pollutants are much the same as those targeted by the Federal agencies, with the exception of PM<sub>2.5</sub> and the addition of sulfates, hydrogen sulfide (H<sub>2</sub>S), vinyl chloride, and visibility reducing particles. The federal and state standards for criteria pollutants of local concern are summarized in **Table 4.5-2**.

Toxic pollutants released into the atmosphere are regulated under Sections 44300-44384 of Division 26 of the Health and Safety Code (H&SC), also known as the State Air Toxics “Hot Spots” Information and Assessment Act of 1987. The Act established a statewide program for the inventory of air toxics emissions from individual facilities including wastewater treatment plants. The Act also requires individual air pollution control districts to prioritize and categorize pollutant releasing facilities as high, intermediate, or low priority for health risk assessment. Those facilities categorized as high priority must submit a health risk assessment (HRA) to the district; other facilities may be required to submit HRAs according to the district’s priorities established pursuant to the Act.

**TABLE 4.5-2  
FEDERAL AND STATE STANDARDS FOR CRITERIA POLLUTANTS**

Pollutant	Averaging Time	Standards	
		Federal	State
Ozone	1 hour	0.12 ppm <sup>a,c</sup>	0.09 ppm <sup>b</sup>
	8 hour	0.08 ppm <sup>b,c</sup>	-
PM <sub>10</sub>	24 hour	150 ug/m <sup>3</sup> <sup>b,d</sup>	50 ug/m <sup>3</sup> <sup>b,f</sup>
	Annual	50 ug/m <sup>3</sup> <sup>b,e</sup>	30 ug/m <sup>3</sup> <sup>b,f</sup>
CO	1 hour	35 ppm <sup>a</sup>	20 ppm <sup>b</sup>
	8 hour	9 ppm <sup>a</sup>	9 ppm <sup>b</sup>
NO <sub>x</sub>	1 hour	-	0.25 ppm
	Annual	0.053 ppm	-

Source: CH2M Hill, 2001b

Notes to Table 4.5-2

- a. Not to be exceeded more than once per year
  - b. Not to be exceeded
  - c. Based on fourth highest concentration averaged over three years
  - d. Based on 99th percentile concentration averaged over three years
  - e. Based on annual arithmetic mean averaged over three years
  - f. Based on annual geometric mean
- ppm = parts per million  
ug/m<sup>3</sup> = micrograms per cubic meter

The State of California also lists certain substances under H&SC Section 39660 *et seq.*, as Toxic Air Contaminants to be regulated to protect public health. Materials listed as Hazardous Air Pollutants under Section 7412 of Title 42 of the United States Code are also listed as Toxic Air Contaminants. The 1990 Amendments to the Federal Clean Air Act added to the list of Toxic Air Contaminants by listing 172 chemicals in 17 classes as Hazardous Air Pollutants for which National Emission Standards (NESHAPs) will be adopted. Emitters of these materials will be required (for the first time) to obtain Federal Emissions Permits if they exceed the threshold amounts for emissions (Tracy, 1993).

### Regional/Local

The San Joaquin County Air Pollution Control District unified in early 1991 with other Valley APCDs to form the SJVUAPCD. The other counties in the Unified District include Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern. The District is currently designated nonattainment/serious for the federal one-hour ozone and PM<sub>10</sub> standards, nonattainment for the state PM<sub>10</sub> standard, and nonattainment/severe for the state 1-hour ozone standard.

## 4.5 AIR QUALITY

### City of Tracy Urban Management Plan/General Plan

Table 4.5-3 includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

**TABLE 4.5-3  
PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Policy AQ 2.1:</b> Reduce air pollutant emission by mitigating air quality impacts associated with development projects to the greatest extent feasible.	Yes	The project will reduce overall air emissions from the plant.
<b>Action AQ 2.1.2:</b> Approve development that could significantly impact air quality, either individually or cumulatively, only if it is conditioned with all reasonable mitigation measures to avoid, minimize or offset the impact.	Yes	The project will reduce overall air emissions from the plant and no mitigation is needed.
<b>Policy AQ 2.3:</b> Reduce impacts of environmentally damaging air pollutants.	Yes	The project will result in an overall decrease in air emissions.
<b>Action AQ 2.3.2:</b> Require new sources of toxic air pollutants to: (1) prepare Health Risk Assessments as required under the Air Toxics "Hot Spots" Act; and (2) establish appropriate land use buffer zones around those areas posing substantial health risks.	Yes	The project will not create a new source of toxic air pollutants.

### 4.5.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

The project would have significant impacts to air quality if it would:

- 1) Violate any federal or state Ambient Air Quality Standards;
- 2) Contribute substantially to an existing or project-related air quality violation;
- 3) Expose sensitive receptors to a substantial concentration. Sensitive receptors are defined as those facilities or land uses that include people who are particularly susceptible to the effects of air pollution, including children, the elderly, and people with illnesses. Schools, hospitals, and residential areas are all examples of sensitive receptors; or
- 4) Create objectionable odors affecting a substantial number of people.

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## EMISSION CALCULATION METHODOLOGY

Liquid process operational air emissions were estimated using the Bay Area Sewage Toxics Emissions (BASTE) model (see **Appendix D**). BASTE is a computational model created by the Bay Area Air Toxics Group that estimates pathway losses (volatilization, sorption, biodegradation) from wastewater for “strings” of processes that make up treatment trains. It allows analyses of complex treatment configurations including split flows, liquid streams, quiescent surfaces, drops, weirs, packed media, aerated processes, biological processes, and covered processes. This model has been used extensively by publicly owned treatment works (POTWs) in California to inventory air toxics emissions as required by AB2588.

Solid process operational air emissions were estimated using an emission factor for ROGs from solids processes obtained from the Joint Emissions Inventory Program (CH2M Hill, 1993) for twelve wastewater agencies operating in the South Coast Air Quality Management District. Emissions from the combustion of waste gas via the flare were calculated using AP-42 emissions factors. The amount of waste gas for the flare was projected for the new facility process rate. AP-42 emission factors were used to calculate emissions from the flare based on waste gas volume.

Construction vehicle emissions were calculated using Urbemis7, a CARB approved modeling program (see **Appendix D**). Worker travel emissions were based on guidance from the Bay Area Air Quality Management District CEQA guidelines, which were suggested for use by the SJVUAPCD Air Impact Guidelines.

## PROJECT IMPACTS AND MITIGATION MEASURES

### Operations Emissions

Emissions of air toxics and criteria pollutants occur from the various wastewater treatment plant processes. In addition, the proposed project would treat a greater wastewater influent flow, which could result in increases in air emissions. However, the project includes reconfiguration and optimization of the secondary treatment systems by switching from a trickling filter solids contact process to a single-stage activated sludge system. The tertiary treatment system also would be optimized by changing the disinfection process from gaseous chlorine to liquid sodium hypochlorite. These reconfigurations would result in a net decrease in air toxics emissions for the project. To calculate future air toxics emissions from the WWTP, the BASTE model was run with current and future wastewater flows. Results are presented in **Table 4.5-4**.

## 4.5 AIR QUALITY

**TABLE 4.5-4  
AIR TOXICS EMISSIONS**

Pollutant	Existing Plant (lb/day)	Expanded Plant (lb/day)	Change in Emissions due to Project (lb/day)
Ammonia	1,428	130	(1,298)
Cloroform	1.8	0.9	(0.9)
1,4 Dichlorobenzene	0.5	0.1	(0.4)
Di-n-butylphthalate	0	0	0
Ethylbenzene	0.1	0	(0.1)
Hydrogen Sulfide	7.1	0.9	(6.2)
Phenol	0	0	0
Toluene	0.2	0	(0.2)
Trichloroethane	0.1	0.1	0
Trichloroethene	0.1	0	(0.1)
Bis (2-ethylhexylphthalate)	0	0	0
Diethylphthalate	0	0	0
Xylenes	0.1	0	(0.1)

Source: CH2M Hill, 2001b.

Table 4.5-4 shows that the project expansion would result in an overall decrease in air toxics emissions. Although wastewater treatment plant influent flow at build-out would be more than double the current amount, the removal of the biotowers as part of the secondary treatment optimization would significantly lessen emissions. The expansion configuration would involve biologically treating the sewage first in the anoxic zone of the aeration basins, and then introducing the air in the aeration zone. This process results in a significant destruction rate of BOD prior to aeration. By contrast, the current configuration involves aerating raw sewage at the biotowers. Because of the decrease in emissions, impacts from air toxics are considered **less than significant**.

Criteria pollutants would result from automobile use from any additional workers required by the expansion, from the solids treatment processes, and from flaring the waste gas. The estimated criteria pollutant emissions are shown in Table 4.5-5. Only approximately four additional on-site workers are expected to be needed for the expanded facility, so mobile emissions of CO, NO<sub>x</sub>, and PM<sub>10</sub> from additional workers is expected to be negligible compared to other project sources of criteria pollutants. Although Table 4.5-5 shows that emissions from solid process operations and flare would increase as a result of the expansion, as stated below in the Federal Conformity section of this analysis, these emissions for the modified plant fall below the nonattainment/serious de minimus emission rates. Therefore, the impacts are considered **less than significant**.

**TABLE 4.5-5  
CRITERIA POLLUTANT EMISSIONS**

<b>Pollutant</b>	<b>Existing Plant (tpy)</b>	<b>Expanded Plant (tpy)</b>	<b>Increase in Emissions due to project (tpy)</b>
ROGs <sup>1</sup>	2.0	3.6	1.6
NO <sub>x</sub>	0.89	1.6	0.71
CO	4.9	8.6	3.7

Source: CH2M Hill, 2001b.

Notes to Table 4.5-5

<sup>1</sup>ROG emissions from flare and solids handling processes. ROG flare emissions include acetylene ethylene, propane, and propylene. Methane and ethane are excluded from the definition of ROGs per Rule 1020 of the SJVUAPCD.

tpy = tons per year

Because the existing 1600-kW gas turbine stand-by generator has sufficient capacity, the wastewater treatment plant expansion would not require additional generators. No significant change in generator use would be expected. Such stationary generators are subject to the permitting requirements of the SJVUAPCD and would have to operate within permit requirements for criteria and other pollutants. Because of their limited use, and since no new generators will be added, this impact is considered **less than significant**.

### **Odor**

Odors from a wastewater treatment plant are due primarily to emissions of ammonia and hydrogen sulfide. The SJVUAPCD does not specify emission limits for ammonia or hydrogen sulfide, but does stipulate rules for emission of these compounds based on distance to sensitive receptors and a facility's complaint record. Projects located within two miles of a sensitive receptor (e.g. residential area, hospital, school, etc.) are required to perform a detailed analysis of the potential odor impacts. A potential odor impact evaluation must also be performed if the project is located near an existing odor source that has already experienced significant odor problems. Significant odor problems are defined as more than one confirmed complaint per year averaged over a three-year period, or three unconfirmed complaints per year averaged over a three-year period. To date, there have been no odor complaints for the WWTP confirmed by the SJVUAPCD for at least the past 7 years (Bayley, pers. comm., 2001).

Estimated emissions data from the BASTE model indicate that odorous emissions would be significantly reduced as a result of the new treatment systems being installed. This reduction is anticipated to occur despite increased flow into the treatment plant, and may result in a reduction of as much as 91 percent of ammonia releases and 87 percent of hydrogen sulfide releases as shown in **Table 4.5-4**. Several features of the proposed project, including removal of the biotowers, installation of screenings washers and compactors that would remove additional organics, and covering of the headworks, would provide this reduction in odorous emissions. Because there are no current odor complaints, and odorous emissions would be significantly reduced, impacts are expected to be **less than significant**.

## 4.5 AIR QUALITY

### Construction Emissions

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered a **potentially significant** impact.

PM<sub>10</sub> is the primary air pollutant resulting from construction activities. In addition to PM<sub>10</sub>, there are other criteria pollutants associated with construction equipment use, and with vehicular emissions from transporting workers, equipment, and supplies. The cumulative emissions expected from construction of all phases of the project are presented in **Table 4.5-6** below. Because the San Joaquin Valley Unified Air Pollution Control District is nonattainment for the state and federal PM<sub>10</sub> standards, impacts are potentially significant.

**TABLE 4.5-6  
CONSTRUCTION EMISSIONS (ALL PHASES)**

Activity and Equipment	Emissions (Pounds/Day)			
	ROG	CO	NO <sub>2</sub>	PM <sub>10</sub>
Site Grading, Excavation, Earth Moving	2.5	--	32.1	2.8
Worker Travel	1.8	26.4	5.7	4.1
Stationary Equipment	0.4	--	0.3	0.02
Mobile Equipment	3.9	--	56.5	4.0
Painting	0.5	--	--	--
<b>Total (lbs/day)</b>	<b>9.1</b>	<b>26.4</b>	<b>94.6</b>	<b>10.9</b>

Source: CH2M Hill, 2001b.

### Mitigation Measures

**MM 4.5.1** During construction, various measures will be taken to control fugitive dust to minimize PM<sub>10</sub> emissions and to reduce vehicle emissions. These measures include the following:

- Construction vehicles will use paved roads to access the construction sites when possible.
- Limit vehicle speeds to 10 mph on unpaved roads.
- Enclose, cover, or water excavated soil twice daily.
- Stockpiles of excavated soil shall be covered at all times when the stockpile is not in use. The covers shall be secured.
- Excavation activities shall be reduced or halted during high winds (e.g., that is when surface wind speeds exceed 20 miles per hour).
- Replant vegetation in disturbed areas following the completion of grading and/or construction activities.
- Minimize vehicle idling time to 10 minutes.

*Timing/Implementation:* The mitigation measures will be implemented concurrently during all phases of project construction.

*Enforcement/Monitoring:* The City of Tracy Department of Development and Engineering Services.

The impacts from project construction are temporary, and implementation of the above mitigation measure will reduce this impact to **less than significant**.

### Federal Conformity

Rule 9110 requires general conformity of a federal action with U.S. Code of Federal Regulations, Title 40, Chapter I, Subchapter C, Parts 6 and 51. A "federal action" is any activity engaged in by a department, agency or instrument of the Federal government, or any activity that the Federal government supports in any way (financial, permit, license, approval, etc.). The conformity determination requires an evaluation of all direct and indirect emissions from the project, and a comparison with either the nonattainment de minimis emission rates or the maintenance de minimis emission rates. Because the project is located in an area designated nonattainment/serious for the federal one-hour ozone and PM<sub>10</sub> standard, nonattainment for the state PM<sub>10</sub> standard, and nonattainment/severe for the state 1-hour ozone standard, the combined direct and indirect emission estimates for the project were compared with the nonattainment de minimis emission rates, as presented in Table 4.5-7. Based on the evaluation presented in Table 4.5-6, the estimated emissions from the project conform to Rule 9110, and impacts are **less than significant**.

TABLE 4.5-7  
PROJECT EMISSIONS VS. NON-ATTAINMENT DE MINIMUS EMISSION RATES

Pollutant	De Minimis Rate [tons per year (tpy)]	Estimated Direct and Indirect Emissions (tpy)	Conformity (Yes/No/ Not Applicable)
<b>Ozone (ROGs or NOx)</b>			
Serious NAAs	50	N/A	Not applicable
Severe NAAs	25	5.2	Yes
Extreme NAAs	10	N/A	Not applicable
Other Ozone NAAs	100	N/A	Not applicable
<b>Carbon Monoxide</b>	100	8.6	Yes
<b>SOx or NOx</b>	100	1.6	Yes
<b>PM<sub>10</sub></b>			
Moderate NAAs	100	N/A	Not applicable
Serious NAAs	70	2	Yes
<b>Lead</b>	25	Not estimated	Not applicable

Source: CH2M Hill, 2001b.

Notes to Table 4.5-5:

NAA = Nonattainment Area

tpy = tons per year

## 4.5 AIR QUALITY

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### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

#### CUMULATIVE SETTING

The cumulative setting for air quality includes both the areas surrounding the project site and the air basin. The only other industrial site adjacent to the WWTP is the Leprino Foods cheese factory. The Owens Illinois glass products company, several miles to the west of the project site, is the only industrial facility in the Tracy area cited as a “high emitting facility” by CARB, producing 785 tons of NO<sub>x</sub> annually (CalEPA). Additional residential, commercial, and industrial development is projected to occur in parts of Tracy as well as in other areas of San Joaquin Valley.

#### CUMULATIVE IMPACTS AND MITIGATION MEASURES

The SJVUAPCD Air Quality Attainment Plan addresses cumulative impacts of air emissions in the air basin, and sets guidelines and policies to manage and, where necessary, to reduce specific pollutant emissions in the basin. The Plan must take into account the projected population growth and development in approved general plans in the Basin. Because the WWTP expansion is sized only to meet a portion of planned growth, and is consistent with Tracy’s UMP, any cumulative impacts in the air basin have been addressed by the Air Quality Attainment Plan. Cumulative impacts are **less than significant**.

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**SECTION 4.6**  
**SURFACE HYDROLOGY, GROUNDWATER**  
**AND WATER QUALITY**

## 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

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Future expansion of the City of Tracy WWTP, as defined in Section 3.0, Project Description and the City of Tracy Facilities Plan (Facilities Plan) (CH2M Hill, 2001), would increase the quantity of treated effluent discharged to Old River near its confluence with Paradise Cut. As part of the expansion project, the City plans to add facilities to improve the level of treatment prior to discharge. The effluent discharged from the proposed expanded treatment works may affect receiving water quality. Potential impacts of WWTP expansion to surface water quality in Old River and the Sacramento-San Joaquin Delta (Delta) are discussed below. Potential water quality-related impacts to aquatic life in Old River and the Delta are discussed in Section 4.8, Biological Resources. The primary sources of data presented in this analysis are the "Water Quality Analysis of Surface Water Discharge," prepared by Larry Walker Associates and presented in **Appendix E** and the "Analysis of the Fate and Water Quality Impacts of the City of Tracy Discharge" prepared by Resource Management Associates (RMA) and presented in **Appendix G**.

### 4.6.1 EXISTING SETTING

#### REGIONAL HYDROLOGY

##### Surface Water

The 290-mile-long San Joaquin Valley occupies the southern half of the Central Valley and has an average width of 130 miles. It covers approximately 32,000 square miles, or one-fifth of California. The San Joaquin River basin is bounded on the west by the Coast Ranges and on the east by the Sierra Nevada. The San Joaquin River itself is 330 miles in length and drains a watershed area of 13,540 square miles (DWR, 2000a). It flows west from the Sierra Nevada, turns sharply north at the center of the valley floor, and flows north through the valley into the Sacramento-San Joaquin Delta. San Joaquin River monthly average flows range from 500 to 1,500 cubic feet per second (cfs) in dry years, 1,500 to 3,500 cfs in normal years, and up to 20,000 cfs to 40,000 cfs in wet years (CALFED, 2000). Major tributaries draining the Sierra Nevada and flowing into the San Joaquin River include the Fresno, Stanislaus, Merced, and Tuolumne rivers. The San Joaquin River flows through portions of Fresno, Madera, Merced, Stanislaus, San Joaquin, Contra Costa, and Sacramento counties.

Historically, the San Joaquin River flowed into the Old River below Mossdale. Since 1967, the Department of Water Resources (DWR) has installed a temporary fish control structure at the head of Old River to limit entry of protected fish species into Old River on a seasonal basis and to avoid contact with the water project pumps. Beginning in 1991, DWR has installed temporary rock barriers during certain months of the year in Middle River, Old River near the Delta-Mendota Canal, and Old River near the San Joaquin River as part of its Temporary Barriers Project associated with its South Delta Improvement Program (Entrix, 1996). These barriers are installed to increase water levels, circulation patterns, and water quality in the south Delta area for local agricultural diversions, as well as to improve operational flexibility of the State Water

## 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

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Project (SWP) and Central Valley Project (CVP) export facilities to help reduce fishery impacts and improve fishery conditions.

The Sacramento-San Joaquin Delta (Delta) forms the lowest part of the Central Valley, lying between the Sacramento and San Joaquin rivers and extending from the confluence of the two rivers inland as far as Sacramento and Stockton. The Delta is roughly bordered by the cities of Sacramento, Stockton, Tracy, and Pittsburg. Smaller cities within the Delta are Antioch, Brentwood, Isleton, and about 14 unincorporated towns and villages. The area receives runoff from over 45 percent of the State's land area including flows from a number of major tributaries, including the Sacramento, Feather, Yuba, Bear, American, Merced, San Joaquin, Mokelumne, Cosumnes, Stanislaus, Tuolumne, and Calaveras rivers. The Delta is within the jurisdiction of six counties (Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo) and covers approximately 1,500 square miles interlaced with hundreds of miles of waterways (DWR, 1993). The Delta is clearly delineated by a legal boundary that includes the areas that historically were intertidal, along with supratidal portions of the floodplains of the Sacramento and San Joaquin rivers. Today's legal Delta extends between the upper extent of the tidewater (at the City of Sacramento on the Sacramento River and at Mossdale on the San Joaquin River) and Chipps Island in the west (CALFED, 2000).

### Groundwater Resources

The City of Tracy overlies an extensive groundwater basin extending from Redding in the north to Kern County in the south and covering most of the central valley of California. Groundwater underlying Tracy occurs in the Tulare Formation, an upper unconfined to semi-confined aquifer zone which is separated from a lower confined zone by the Corcoran clay which thins to the west of the City. Confinement in the lower zone is indicated by the presence of flowing wells.

The upper aquifer zone includes the upper part of the Tulare Formation (approximately 200 feet) and overlying alluvium, terrace deposits, and flood-basing deposits. The lower zone includes deposits with a thickness of about 500 feet in the Tracy area. These deposits are comprised of poorly to locally well-sorted lenticular deposits of clay, silt, sand, and gravel and include the lower portion of the Tulare Formation. The regional extent of the aquifer that influences groundwater conditions in the Tracy area consists of approximately 69,000 acres and encompasses the City and adjacent irrigation districts.

### WATER QUALITY

#### Surface Water Quality

The water quality of the lower San Joaquin River drainage and the Sacramento-San Joaquin Delta has been significantly affected by human activities. As the lands of these two contiguous regions were converted to agricultural and urban uses over the past century, changes in water quality and aquatic habitats have occurred through several mechanisms. Intensive use of pesticides and fertilizers, which enter surface waters in various ways, has altered water quality in

## 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

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the region (Kuivila and Foe, 1995; Domagalski et al., 1997; Kratzer and Shelton, 1997; Brown et al., 2000). Pesticide concentrations sometimes reach levels acutely toxic to sensitive invertebrates (Kuivila and Foe, 1995). Agricultural return flows also may contain high concentrations of dissolved solids and trace elements that can affect water quality (Hill and Gilliom, 1993; Brown, 1997). Additionally, watersheds upstream and tributary to the San Joaquin River and Delta may contribute pollutants and stressors that produce or exacerbate water quality problems in the region. Construction of the Stockton Deep Water Channel, in combination with increased nutrient levels and hydraulic modification (channelization and flow reduction) in the San Joaquin River system, has created an area of seasonally depressed dissolved oxygen near Stockton. Salts and dissolved mineral concentrations in the region have increased through expanded agricultural and urban use of water in the San Joaquin Valley.

Long-term, comprehensive, surface water quality evaluations of the San Joaquin River and the Sacramento-San Joaquin Delta are performed as part of several water quality monitoring programs, including, but not limited to, the DWR Municipal Water Quality Investigations (MWQI) Program and the DWR D-1485 Water Quality Monitoring Program. Since 1982 the MWQI Program has focused its efforts on the determination and evaluation of contaminants that affect drinking water quality in the Delta. The MWQI Program presently collects water quality data on conventional pollutants, total and dissolved organic carbon (TOC and DOC), total trihalomethane formation potential (TTHMFP), and selected trace elements, minerals, and nutrients at 27 monitoring sites located throughout the greater Delta region and Suisun Bay.

Similarly, the Compliance and Monitoring/Analysis Branch of the DWR Environmental Services Office has been collecting basic water quality data in the Delta, Suisun Marsh, and San Pablo Bay through the Decision 1485 (D-1485) Water Quality Monitoring Program since 1983. The State Water Resources Control Board (SWRCB) mandated the establishment of this program in their passing of Decision 1485. In general, DWR-MWQI monitoring data provided a more comprehensive and useful assessment of surface water quality at selected sites of interest in the project area.

In order to evaluate nutrient concentrations in the San Joaquin River near Vernalis, water quality data from the U.S. Geological Survey (USGS) National Water-Quality Assessment (NAWQA) Program were used in the present analysis. Since 1991, the NAWQA Program has collected water quality data in cooperation with other federal, State, and local agencies to understand the spatial extent of water quality, how water quality changes with time, and how human activities and natural factors affect water quality across the Nation. The NAWQA Program examined water quality in the San Joaquin River Basin from 1992-1995.

This evaluation of existing surface water quality used available relevant data from selected water quality monitoring sites sampled by the DWR-MWQI, DWR-D-1485, and USGS-NAWQA monitoring programs (see **Table 4.6-1**). Water quality monitoring sites were selected in order to demonstrate ambient water quality conditions:

#### 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

- (a) in the main stem of the San Joaquin River upstream of the proposed City of Tracy discharge at Old River,
  - (b) within the south central Delta at Middle River, and
  - (c) at three locations in the southwestern Delta near municipal water supply intake structures
- (see **Figure 4.6-1**, Regional Map).

**TABLE 4.6-1**  
**WATER QUALITY MONITORING SITES CONSIDERED IN ANALYSIS OF**  
**EXISTING SURFACE WATER QUALITY**

Monitoring Program	Site Description	General Time Period of Monitoring Data <sup>1</sup>
DWR-MWQI and USGS-NAWQA	San Joaquin River near Vernalis	Jan 1990 – Aug 1999
DWR-MWQI and DWR-D-1485	San Joaquin River at Mossdale Bridge	Jan 1990 – Jun 1999
DWR-MWQI	Middle River at Borden Highway	Jan 1990 – Sep 1997
DWR-MWQI	Delta Pumping Plant Headworks	Jan 1990 – Sep 1999
DWR-MWQI	Delta-Mendota Canal Intake at Lindemann Road	Jan 1990 – May 1999
DWR-MWQI	Old River near Byron (MWQI Station #9)	Jan 1990 – Sep 1999

<sup>1</sup>. Dates shown represent maximum time periods covered by certain data sets. Time periods covered by specific data sets examined in the current analyses (as determined by site and constituent) can be found in Appendix F.

The extent of the present analysis is limited by the following factors: availability of data collected at the selected water quality monitoring sites in terms of both constituents analyzed and the time period over which the data were collected; and usefulness of data when considering laboratory detection limits and their relationship to relevant water quality criteria. The data used in the surface water quality analysis represent a subset of the best available data, and provide the basis for the conclusions drawn from this investigation.

The City of Tracy municipal water intake is located in the Delta-Mendota Canal, while one of the Contra Costa Water District's three municipal water intakes is located in Old River near Highway 4. Water from the State Water Project's (SWP) Clifton Court Forebay is pumped by the Harvey O. Banks Delta Pumping Plant into the 444-mile long California Aqueduct.

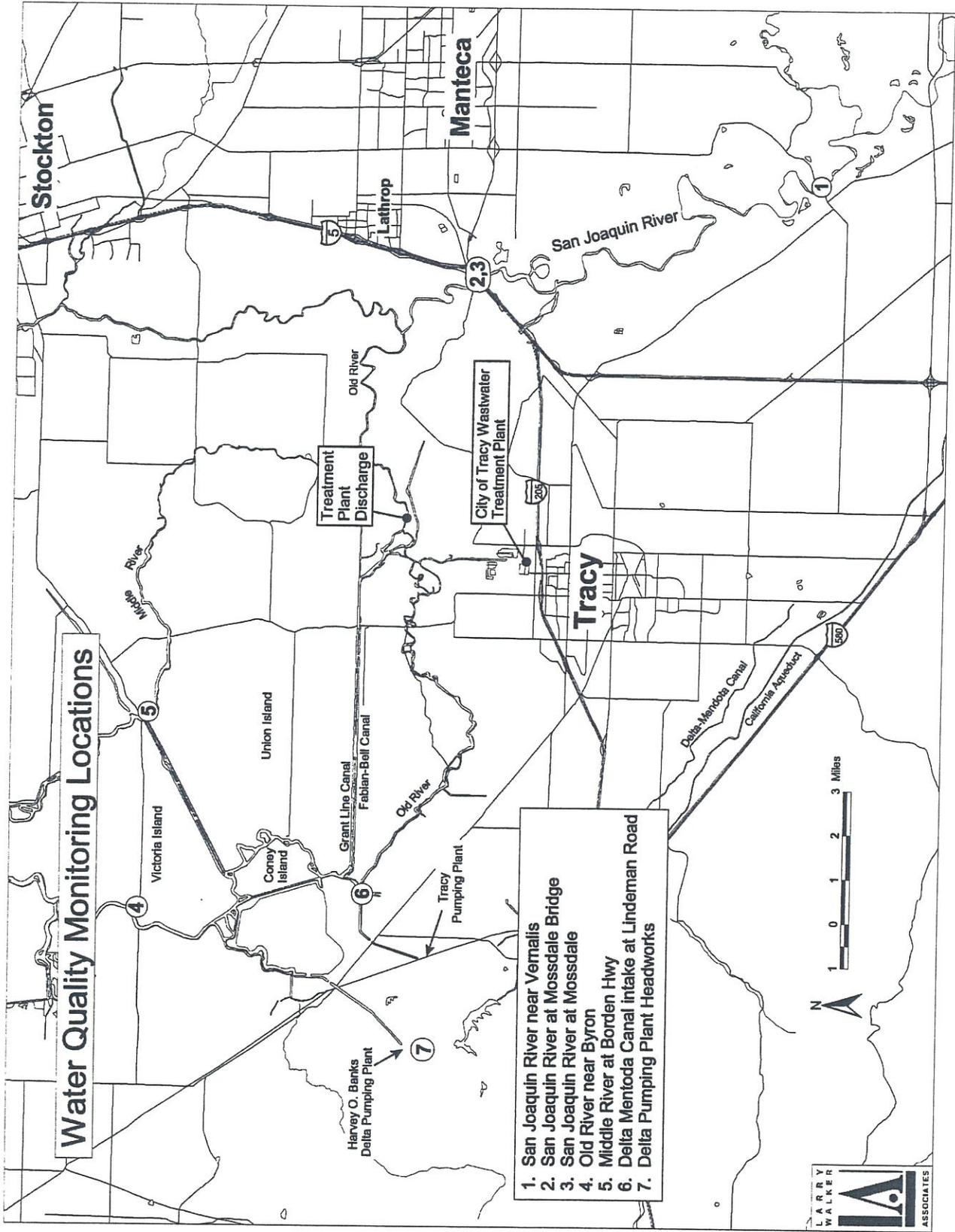


Figure 4.6-1, Regional Map

## 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

**TABLE 4.6-2  
COMPARISONS OF SURFACE WATER QUALITY WITH WATER QUALITY CRITERIA**

Parameter	Minimum Relevant WQ Criteria	Regulatory Source	Frequency of Compliance	Monitoring Sites Considered in Water Quality Data Analysis
Total Dissolved Solids	none	n/a	n/a	All DWR-MWQI sites listed in Table 4.6-1 SJR near Vernalis
Total Organic Carbon	none	n/a	n/a	Delta Pumping Plant Old River near Byron
Dissolved Organic Carbon	None	n/a	n/a	All DWR-MWQI sites Listed in Table 4.6-1
Fecal Coliform	200 MPN/ 100 mL	Basin Plan	54.5%	SJR near Vernalis
			60.0%	SJR at Mossdale Bridge
			81.8%	Middle River at Borden Hwy
			88.9%	Delta Pumping Plant
			81.8%	DMC Intake at Lindemann Rd.
			90.9%	Old River near Byron
Dissolved Oxygen	5 mg/L	Basin Plan	100%	SJR near Vernalis
			100%	SJR at Mossdale Bridge
			98.9%	Middle River at Borden Hwy
			99.2%	Delta Pumping Plant
			99.2%	DMC Intake at Lindemann Rd.
			100%	Old River near Byron
			<b>A , B</b>	
Electrical Conductivity (as Specific Conductance) <i>Objectives for San Joaquin River near Vernalis</i>	A. 700 µmhos/cm Apr.1 - Aug. 31	Basin Plan	61.4%, 89.8%	SJR near Vernalis
			57.1%, 93.3%	SJR at Mossdale Bridge
			100%, 100%	Middle River at Borden Hwy
	B. 1000 µmhos/cm Sept. 1 - Mar. 31		96.4%, 100%	Delta Pumping Plant
			79.0%, 100%	DMC Intake at Lindemann Rd.
			87.2%, 100%	Old River near Byron
PH	6.5 - 8.5	Basin Plan	98.2%	SJR near Vernalis
	standard		89.1%	SJR at Mossdale Bridge
	units		98.9%	Middle River at Borden Hwy
			98.5%	Delta Pumping Plant
			98.6%	DMC Intake at Lindemann Rd.
			97.3%	Old River near Byron
Temperature	none	n/a	n/a	All monitoring sites Listed in Table 4.6-1
Ammonia, Dissolved as N	Ammonia tox. sliding scale based on pH	EPA	100%	No ammonia toxicity observed at any monitoring site listed in Table 4.6-1
Copper, Dissolved	5.12 µg/L <sup>2</sup>	CTR	97.8%	SJR near Vernalis

1. Frequency of compliance calculated as percent of data in compliance with relevant water quality criterion.
2. Dissolved copper criterion is based on specific calculation where field-measured hardness = 52.0 mg/L. Only a single exceedance of the CTR hardness-based dissolved copper criterion was observed for the San Joaquin River near Vernalis data set.

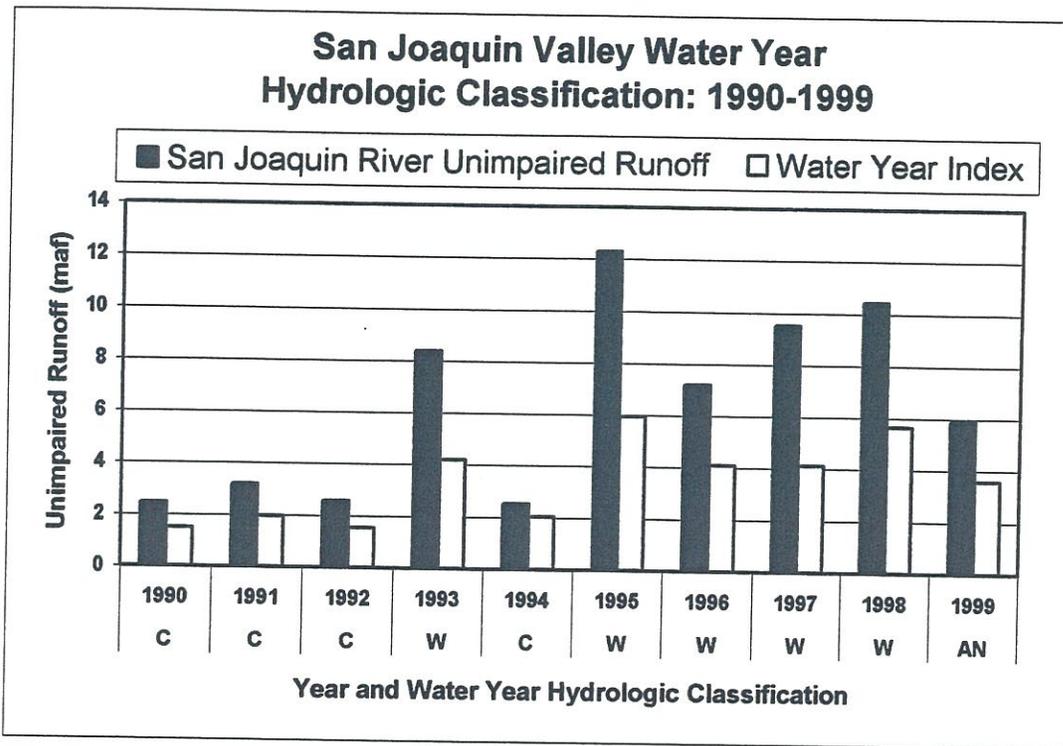
The analysis of water quality data for two distinct water year hydrologic classifications provided information on existing surface water quality in the project area under the widely variable hydrologic conditions experienced by California's Central Valley. Using the water year hydrologic classifications for the San Joaquin Valley (see **Appendix F**), water quality data from 1990 to 1992 was used to determine baseline surface water quality in the project area during *critical dry water years*. Data collected from 1995 to 1999 was used to characterize baseline surface water quality during *wet/above normal years*. Summary statistics for surface water quality data collected during critical dry and wet/above normal water years are presented in **Appendix F**. Data for the above-listed water quality parameters were also compared to relevant minimum water quality criteria (see **Table 4.6-2**). In this comparison, available water quality data collected from 1990 through 1999 (see **Table 4.6-2**) were analyzed to determine compliance to regulatory standards during a 10-year period that included critical, above normal and wet water year hydrologic classifications (**Figure 4.6-2**). Monitoring periods of the data sets used in the comparison to criteria evaluations are presented in **Appendix F**. In the compliance analyses in this section, complete data sets were assessed, including extreme values.

In the following discussions, median data values are presented to portray representative, central values for purposes of understanding spatial or seasonal differences in data. Again, compliance analyses were not typically based on median values.

### **Total Dissolved Solids**

The salinity of Delta water (often measured by the concentration of total dissolved solids (TDS) in mg/L) is influenced by inflows from the ocean. With a TDS concentration of approximately 35,000 mg/L (compared to freshwater concentrations of a few hundred mg/L or less), seawater that enters the Delta dictates the TDS levels at various locations. Inflow of freshwater from the Sacramento River (TDS of 110 mg/l) and other Delta tributaries has the potential to limit the relative magnitude and location of seawater intrusion occurring at any given time. Due to the fact that seawater has a TDS concentration that is more than two orders of magnitude greater than that of Sacramento River water, Delta salinity is influenced more by the quantity (i.e., flow in cfs) of Sacramento River water entering the Delta than by its relative quality (i.e., TDS concentration). Although seawater intrusion is a primary factor affecting the salinity and TDS of Delta waters, agricultural and urban runoff, treated wastewater discharges, and agricultural drain return water also influence Delta TDS levels. The most heavily concentrated source of agricultural discharges to the Delta is along the San Joaquin River (CALFED, 2000). Agricultural drainage from Mud and Salt sloughs in the San Joaquin River watershed and from Sacramento Slough and Colusa Basin Drain in the Sacramento River watershed have been estimated to contribute 30 to 50 percent of the riverine TDS load to the Delta (Brown and Caldwell et al., 1995). TDS data for the monitoring stations are presented in **Table 4.6-3**.

Figure 4.6-2 San Joaquin Valley Unimpaired Runoff and Water Year Classification: 1990-1999.



**Notes:**

- The data presented above were generated by the California Department of Water Resources (see <http://cdec.water.ca.gov/cgi-progs/ioidir/wsihist>). These indices have been used operationally by DWR for planning and managing of water supplies since 1995, and are defined in SWRCB Revised Decision 1641 (2000) (see <http://www.waterrights.ca.gov/baydelta/d1641.htm>).
- A water year extends from Oct 1 - Sep 30.
- Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or export of water to or import of water from other basins.
- San Joaquin River Runoff is the sum of Stanislaus River inflow to New Melones Lake, Tuolumne River inflow to New Don Pedro Reservoir, Merced River inflow to Lake McClure, and San Joaquin River inflow to Millerton Lake.
- San Joaquin Valley Water Year Index =  $0.6 * \text{Current Apr-Jul Runoff in (maf)} + 0.2 * \text{Current Oct-Mar Runoff in (maf)} + 0.2 * \text{Previous Water Year's Index}$  [if the Previous Water Year's Index exceeds 4.5, then 4.5 is used].
- San Joaquin Valley Water Year Hydrologic Classification:

<b>Year Type:</b>	<b>Water Year Index:</b>
W = Wet Year	Equal to or greater than 3.8
AN = Above Normal	Greater than 3.1, and less than 3.8
BN = Below Normal	Greater than 2.5, and equal to or less than 3.1
D = Dry	Greater than 2.1, and equal to or less than 2.5
C = Critical	Equal to or less than 2.1

**TABLE 4.6-4  
TOC and DOC Data Summary - Median Concentrations**

River	Site	TOC (mg/L) Wet/Above Normal	DOC (mg/L) Wet/Above Normal	DOC (mg/L) Critical Water
Mainstream San Joaquin River	Vernalis	2.8	2.8	3.4
	Mossdale	N/A	3.2	3.3
Southwestern Delta	Delta Pumping Plant Headworks	2.8	3.0	3.5
	Old River near Byron	3.1	3.2	3.4
	Delta Mendota Canal Intake	N/A	3.2	3.7
South Central Delta	Middle River at Borden Hwy	N/A	3.2	3.9

Note: N/A denotes data not available

TOC and DOC concentrations are commonly compared to the 2 mg/L and 4 mg/l treatment thresholds of the Disinfection/Disinfection Byproduct (D/DBP) Rule, which are applied at the intakes to drinking water plants. In comparing the TOC and DOC minimum detected data (see **Appendix F**) with the D/DBP Rule, all monitoring sites exceed the 2 mg/L treatment threshold criterion, while a number of maximum data points exceed the 4 mg/l threshold.

**Fecal Coliform**

Fecal coliform bacteria are used as an indicator of the presence of pathogens in water. Microbial pathogens pose a direct threat to public health. The primary purpose of drinking water treatment is to remove or kill pathogens. Based on limited data, levels for pathogens in routine sampling of Delta water appear to be lower than national averages (CALFED, 2000). However, the limited data along with significant technical limitations in measuring techniques do not enable reliable conclusions to be drawn at this time. Moreover, recent sampling during storm events has indicated very high levels of total and fecal coliform in storm water runoff. This evaluation is limited to data collected during wet water years at the six DWR-MWQ1 stations as summarized in **Table 4.6-5**.

**TABLE 4.6-5  
FECAL COLIFORM DATA – MEDIANS DURING WET WATER YEARS**

River	Site	Most Probable Number (MPN) per 100 mL
San Joaquin River	Vernalis	192.0
	Mossdale	127.9
Southwestern Delta	Delta Pumping Plant Headworks	32.4
	Old River near Byron	12.4
South Central Delta	Middle River at Borden Hwy	12.4

**TABLE 4.6-3  
TDS DATA SUMMARY – MEDIAN CONCENTRATIONS**

River	Site	Critically Dry Year Concentration (mg/L)	Wet/Above Normal Year Concentrations (mg/L)
Mainstream San Joaquin	Vernalis	539.5	182
	Mossdale	555.0	242.0
Southwestern Delta	Delta Mendota Canal Intake	324.0	192
	Old River near Byron	376.0	197.0
	Delta Pumping Plant Headworks	348.0	164
South Central Delta	Middle River at Borden Hwy	256.0	152.0

### Total Organic Carbon and Dissolved Organic Carbon

A side effect of oxidative disinfection associated with wastewater treatment and discharge is the formation of unwanted chemical by-products (called disinfection by-products (DBPs)), some of which may result in adverse health impacts. Trihalomethanes are a common form of DBP. Delta waters contain trihalomethane (THM) precursors, such as bromide, which are chemically transformed into trihalomethane compounds, which are suspected carcinogens. Trihalomethanes are produced when chlorine or ozone used in disinfection reacts with organic compounds present in the water. Dissolved organic compounds that originate from decayed algae and other plant material act as precursors by providing a source of carbon in THM formation reactions. When bromides (coming primarily from ocean water) occur in water along with organic THM precursors, THMs are formed that contain bromine as well as chlorine. In addition to potential adverse health impacts, DBPs may produce objectionable taste and odor (T & O) characteristics that may affect consumer acceptance of drinking water. Different oxidants and different sources of water yield different types and concentrations of disinfection by-products.

Additionally, nutrient levels in waters can affect disinfection treatment indirectly by supporting the growth of algae and other organisms, which subsequently adds to the organic carbon concentrations in water. The presence of organic carbon in Delta exports (in both its total and dissolved forms) is used to indicate the potential for THMs. As was observed for TDS, median DOC concentrations were greater at all sites during critical dry water years than during wet/above normal water years (see **Appendix F**). TOC and DOC median concentrations are summarized in **Table 4.6-4** below.

Fecal coliform levels were compared to the Basin Plan water quality objective of 200 MPN/100 mL. Median fecal coliform levels remained below the Basin Plan objective at all six DWR-MWQI sites (see **Appendix F**). Frequency of compliance with the Basin Plan fecal coliform objective ranged from 54.5 percent in the San Joaquin River near Vernalis to 90.9 percent in Old River near Byron (see **Table 4.6-2**).

### **Dissolved Oxygen**

Low dissolved oxygen (DO) concentration and the presence of oxygen-depleting substances occur in isolated areas of the Delta. Delta waterways and the San Joaquin River are listed on the CWA Section 303(d) list as impaired for low DO concentration (SWRCB, 1998). Oxygen-depleting substances originate from a variety of sources, but are commonly the products of decaying organic material from in-stream plants or plant matter from storm water systems. The material transported by storm flows may contribute to oxygen demand. Storm water systems also discharge during the dry season due to urban irrigation and water use. Dry season discharge is at times more concentrated with respect to oxygen-depleting substances than wet season discharge. Agricultural drain water (irrigation return), animal feedlot waste, and traditional industrial wastewater also may carry oxygen-depleting substances and nutrients. Nutrients stimulate the growth of algae and other in-stream plants. When these organisms die, they degrade and exert a demand on oxygen in the stream.

Dissolved oxygen concentrations must be maintained above specified levels to protect aquatic life beneficial uses. The Central Valley Basin Plan specifies minimum levels of dissolved oxygen to be maintained in specific water bodies. With respect to the water bodies considered in the present analysis, the Basin Plan specifies that DO concentration shall not be reduced below 5 mg/L. Ambient DO concentrations are observed to fall below this 5 mg/L standard between June and November in the San Joaquin River near Stockton. Oxygen depletion in the San Joaquin River is highest in late summer and fall when high water temperature reduces the oxygen-carrying capacity of the water and increases biotic respiration rates. Low or negative stream flow past Stockton reduces dilution and mixing, which reduces re-aeration of the water.

Unlike TDS and DOC, median DO concentrations (see **Table 4.6-6**) calculated for data collected during critical water years were not noticeably dissimilar from median DO concentrations calculated for data collected during wet water years. In fact, median DO concentrations calculated for Vernalis, Middle River and the Delta-Mendota Canal were higher during critical water years than during wet water years, and median DO concentrations at Mossdale remained the same during both critical and wet time periods (see **Appendix F**).

## 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

**TABLE 4.6-6  
DISSOLVED OXYGEN DATA - MEDIAN CONCENTRATIONS**

River	Site	Critical Water Years (mg/L)	Wet /Above Normal Water Years (mg/L)
San Joaquin	Vernalis	9.0	8.6
	Mosssdale	9.1	9.1
Southwestern Delta	Delta Mendota Canal Intake	8.1	7.9
	Old River near Byron	7.6	8.0
	Delta Pumping Plant Headworks	8.5	8.5
South Central Delta	Middle River at Borden Hwy	8.4	7.9

Monitoring data for dissolved oxygen (see **Table 4.6-7**) shows total compliance with the Basin Plan dissolved oxygen objective (minimum of 5 mg/l) in the San Joaquin River upstream of the Stockton Deep Water Ship Channel. Similar high compliance with the Basin Plan objective was found in the southwestern and south central Delta where compliance ranged from 98.9 percent in Middle River at Borden Hwy to 100 percent in Old River near Byron (see **Table 4.6-2**).

**TABLE 4.6-7  
DISSOLVED OXYGEN DATA – OBSERVED MINIMUMS**

River	Site	Minimum Observed Levels (mg/L)	Monitoring Period
San Joaquin	Vernalis	5.5	1/1990-9/1997
	Mosssdale	7.0	1/1990-9/1997
Southwestern Delta	Delta Mendota Canal Intake	5.3	1/1990-9/1997
	Old River near Byron	6.5	1/1990-9/1997
	Delta Pumping Plant Headworks	6.4	1/1990-9/1997
South Central Delta	Middle River at Borden Hwy	6.1	1/1990-9/1997

### Electrical Conductivity (EC)

Electrical conductivity is a measurement of the ionic activity of water and is positively correlated with total dissolved solids (TDS) concentrations in water. Salinity is typically measured as TDS in mg/L or as electrical conductivity (EC) in  $\mu\text{mhos/cm}$ . Discharges from agriculture, wetlands, mines, industries, and urban areas contribute TDS to the San Joaquin River and the Sacramento-San Joaquin Delta. As discussed previously, TDS primarily may affect agricultural and drinking

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water. However, fish and wildlife habitat can also be affected by locally and seasonally elevated salinity with a potential for even more sensitivity due to specific ion toxicity.

The Basin Plan's 700  $\mu\text{mhos/cm}$  30-day running average specific conductance (electrical conductivity normalized for a temperature of 25 °C) water quality objective for the San Joaquin River near Vernalis for the April through August period was exceeded 54 percent of the time from 1986 through 1997 (CALFED, 2000). The 1000  $\mu\text{mhos/cm}$  water quality objective for the September through March period was exceeded 13 percent of the time (CALFED, 2000). The EC compliance percentages stated above are somewhat less than those presently calculated for Vernalis using a data set covering January 1990 through June 1999 (see **Table 4.6-2**). Differences in percent compliance are likely due to the fact that the 1986-97 data set included data from several critical water years. Median EC values for the monitoring locations and percent compliance are summarized in **Table 4.6-8** and **Table 4.6-9**, below.

**TABLE 4.6-8**  
**SPECIFIC CONDUCTANCE DATA – MEDIAN VALUES**

River	Site	Critical Dry Water Years ( $\mu\text{mhos/cm}$ )	Wet/Above Normal Years ( $\mu\text{mhos/cm}$ )	Monitoring Period (wet/above normal years)
San Joaquin	Vernalis	901.5	322.0	12/97-6/99
	Mossdale	958.0	409.0	1/95-9/97
Southwestern Delta	Delta Mendota Canal Intake	639.5	338.0	1/95-9/97
	Old River near Byron	617.5	354.0	12/97-6/99
	Delta Pumping Plant Headworks	573.0	234.5	1/95-9/97
South Central Delta	Middle River at Borden Hwy	437.0	264.0	1/95-9/97

**TABLE 4.6-9**  
**ELECTRICAL CONDUCTIVITY (EC) - COMPLIANCE WITH WATER QUALITY OBJECTIVES**

River	Site	Compliance	Monitoring Period
San Joaquin	Vernalis	61.4%	April-August
		89.8%	September-March
	Mossdale	57.1%	April-August
		93.3%	September-March
Southwestern Delta	Delta Mendota Canal Intake	79.0%	April-August
	Old River near Byron	87.2%	April-August
	Delta Pumping Plant Headworks	96.4%	April-August
South Central Delta	Middle River at Borden Hwy	100%	April-August

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### pH

The measurement of pH indicates the concentration of hydrogen ions in solution. It expresses the intensity of an acid, depending upon its dissociation as well as the total amount present. Water is a weak electrolyte; hence, by definition a small fraction of it dissociates into the ions that compose its molecule, H<sub>2</sub>O. In a neutral solution, the number of hydrogen ions equals the number of hydroxyl ions. At neutrality, the molar concentration of H<sup>+</sup> is expressed as pH 7.0. Lower pH values (below 7.0) indicate greater hydrogen ion concentrations and greater acidity, while pH values above 7.0 indicate basic conditions. Aquatic life may begin to be adversely impacted by pH values in ambient waters which are less than 6.5 or greater than 8.5. In natural waters, both the photosynthesis of algae and aquatic plants, and the respiration of plants, animals and bacteria influence pH levels. Despite the fact that some acidity in natural waters is derived from strong mineral acids and organic acids, the pH range in most inland waters extends from 6.0 to 9.0 and is the result of hydrogen ions contributed from carbonic acid in its various forms. The San Joaquin River near Vernalis showed the greatest range in pH values during both critical water years (6.2 – 9.5 pH units) and wet/above normal water years (6.0 – 8.5 pH units) (see **Table 4.6-10**). Photosynthetic activity in algae rich waters may result in significant pH swings, with maximums exceeding 9.0.

**TABLE 4.6-10**  
**pH DATA - MEDIAN AND MAXIMUM LEVELS**

River	Site	Critical Dry Water Years (pH units)		Wet/Above Normal Years (pH units)		Compliance
		Median	Maximum	Median	Maximum	
San Joaquin	Vernalis	7.9	9.5	7.2	8.5	98.2%
	Mossdale	8.1	9.5	7.6	7.6	89.1%
Southwestern Delta	Delta Mendota Canal Intake	7.7	8.8	7.5	8.0	98.6%
	Old River near Byron	7.6	8.5	7.1	7.6	97.3
	Delta Pumping Plant Headworks	7.8	8.6	7.5	8.1	98.5%
South Central Delta	Middle River at Borden Hwy	7.7	8.7	7.3	7.8	98.9%

differ in both their oxygen requirements and their abilities to remove oxygen from water. As temperature increases, the oxygen-holding capacity of water decreases. Water temperature also affects migration behavior (e.g., avoidance or behavioral blockages of migration routes), egg development, disease resistance, and overall health of aquatic organisms. Cold-water species such as Chinook salmon and steelhead are particularly sensitive to exposure to elevated water temperatures. Temperature also plays a role in the rate at which trihalomethanes are formed, and the rate at which mercury undergoes methylation. Both types of reactions proceed faster as temperatures increase.

Differences in median values between critical dry years and wet/above normal years are summarized in **Table 4.6-11**. Median temperatures were generally higher during critical dry water years than during wet water years (see **Appendix F**). Temperatures ranged from an observed minimum of 3.1 °C to an observed maximum of 30.0 °C on the San Joaquin River at Mossdale during the critical dry water year period January 1990 through December 1992.

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The importance of water temperatures within the delta varies seasonally based on the life history and occurrence of various species. Chinook salmon and steelhead are influenced by elevated temperatures during adult and juvenile migration periods, which generally extend from the early fall through late spring months. Other species, such as striped bass, are less sensitive to elevated temperatures throughout the year. Very little is known about the effects of temperature on habitat quality or use by species such as delta smelt and splittail.

**TABLE 4.6-11**  
**Temperature Data - Median Values**

River	Site	Critical Dry Water Years (°C)	Wet/Above Normal Years (°C)
San Joaquin	Vernalis	17.5	13.7
	Mossdale	19.5	15.5
Southwestern Delta	Mendota Canal	20.7	18.7
	Old River near Byron	21.0	21.2
	Delta Pumping Plant Headworks	19.6	18.5
South Central Delta	Middle River at Borden Hwy	19.2	18.0

### Nutrients

Nitrogen and phosphorus are essential for growth of plants and animals. For this reason, these elements are often identified as nutrients, or biostimulants, when discharged to surface waters. In nutrient-limited aquatic environments, the addition of the limiting nutrient to a water body through natural or man-made activities can lead to enhanced growth of aquatic algae and other microscopic aquatic organisms at the base of the food chain. Other factors may limit such increases in primary productivity in aquatic systems, including turbidity, which can limit the transmittance of light, another essential component of such productivity.

Chronic and catastrophic discharges of nutrients into Central Valley and Bay-Delta waterways contribute to problems such as nutrient loading, elevated ammonia, algal blooms, and low dissolved oxygen. Nutrients largely result from erosion; agricultural runoff, including livestock operations; urban storm water runoff; and wastewater treatment plant discharges.

Nitrogen is a complex element that can exist in seven states of oxidation. From a water quality standpoint, the nitrogen-containing compounds that are of most interest are organic nitrogen, ammonia, nitrite, nitrate, and nitrogen gas. The distribution of ammonia in fresh waters is highly variable regionally, seasonally, and spatially within rivers and lakes and depends upon the level of productivity of the water body and the extent of inputs from organic matter. The lower San Joaquin River receives inputs of nitrogenous compounds from a variety of sources including confined animal facilities (dairies, poultry and livestock feed lots), agricultural and urban runoff, and wastewater treatment facilities.

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At high concentrations for a relatively short duration (hours), ammonia may be acutely toxic (cause adverse effects to organisms in short periods of time). Lower ammonia concentrations may also cause chronic (long-term) effects if the period of exposure is sufficiently long (weeks or months). Ammonia equilibrium (and thereby toxicity) is exponentially related to pH, with the toxic un-ionized ammonia fraction increasing significantly at higher pH levels. Available ammonia data are presented in **Table 4.6-12**.

**TABLE 4.6-12  
AMMONIA DATA – MEDIAN AND MAXIMUM CONCENTRATIONS IN WET WATER YEAR  
(1996-1997)**

River	Site	Median (mg/L)	Maximum (mg/L)
San Joaquin	Vernalis	0.05	1.4
	Mossdale	0.03	0.51
Southwestern Delta	Delta Mendota Canal Intake	0.07	0.2
	Old River near Byron	0.04	0.14
	Delta Pumping Plant Headworks	0.09	0.22
South Central Delta	Middle River at Borden Hwy	0.04	0.17

In contrast to the numerous forms of nitrogen present in surface waters, the most significant form of inorganic phosphorus is orthophosphate. However, the inorganic fraction of phosphorus in fresh water is small compared to the organic fraction, which constitutes greater than 90 percent of the total phosphorus typically measured in fresh water systems. Since inorganic and organic phosphorus fractions are metabolized differently by different biota, the total phosphorus content of unfiltered water, which consists of phosphorus in particulate and dissolved phases, is typically the most useful measurement used in evaluating phosphorus loading. Phosphorus, like nitrogen, is of importance in water supply systems and in the aquatic environment. Phosphorus and nitrogen data for the San Joaquin River at Vernalis are presented in **Table 4.6-13**.

**TABLE 4.6-13  
NUTRIENT DATA – SAN JOAQUIN RIVER AT VERNALIS  
(APRIL 1992-MARCH 1995)**

Nutrient	Median (mg/L)	90 <sup>th</sup> Percentile Value (mg/L)	Maximum Value (mg/L)
Nitrogen	2.20	3.43	4.00
Phosphorus	0.2	0.41	0.75

A site-by-site, pair-wise evaluation of ammonia and pH data collected at each of the six monitoring sites revealed no occurrences of ammonia toxicity as defined by the current EPA water quality criterion for ammonia (EPA, 1999). In addition, analysis of toxicity data collected by the Regional Board in Delta waters in the mid-1990's did not demonstrate toxicity due to un-ionized ammonia (Brown, 1997).

**Trace Elements**

Trace elements (metals and minerals) may impact aquatic organisms directly or may impact human health or wildlife through drinking water consumption or through bioaccumulation in fish or shellfish consumed by humans or high-end predators. Heavy-metal loading in the watershed has been evaluated as a possible source of aquatic toxicity throughout the Bay-Delta and its tributaries. The sources that contribute to total metal loading in the Bay-Delta, including municipal discharges (treated effluent and urban runoff), agricultural runoff, mining, geothermal sources, sediment contributions, and others. At present, insufficient information exists to determine the ecological impacts or spatial and temporal extent of metals contamination in the Bay-Delta. Trace metals in the Delta are regulated in the Basin Plan and under the California Toxics Rule (CTR), adopted in May 2000 (EPA, 2000).

Toxicity of trace elements, specifically metals, is related to the hardness (typically measured as mg/L of calcium carbonate) of the ambient water in which the metals are detected (see **Table 4.6-14**). As water hardness increases, the potential for metals toxicity decreases.

**TABLE 4.6-14  
HARDNESS DATA FOR DELTA WATERS**

River	Site	(Hardness mg/L of CaCO <sub>3</sub> )		
		Minimum	10 <sup>th</sup> Percentile	Median
San Joaquin River	Vernalis	32	53.8	128.5
	Mossdale	36	52.1	152
Southwestern Delta	Delta Mendota Canal Intake	39	66.8	110
	Old River near Byron	36	54	94
	Delta Pumping Plant Headworks	39	59	104
South Central Delta	Middle River at Borden Hwy	42	54	88

There is a lack of data for most trace elements in the Sacramento-San Joaquin Delta. The present analysis found that the limited data for copper indicates 98 percent compliance for the metal in the San Joaquin River at Vernalis, the only site with usable data. While dissolved boron data were collected at all DWR-MWQI sites, no assessment of regulatory compliance can be made because the Basin Plan specifies a criterion only for total boron. Similarly, dissolved selenium data were collected at the Vernalis, Mossdale, and Delta-Mendota Canal sites, but total selenium is the fraction of the metal regulated by both the Basin Plan and the California Toxics Rule, and therefore no estimates of regulatory compliance can be made for the constituent.

**Trace Organics**

The projected trace organic concentrations in the future Tracy discharge are unknown. Based on review of data from other municipal treatment plants in California, potential trace organics in the proposed tertiary effluent may include diazinon, lindane, trihalomethanes and bis-2 (ethylhexyl) phthalate. The presence of these pollutants in the proposed City of Tracy discharge cannot be

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confirmed until specific measurements of the discharge are made. For diazinon and lindane, which are included on the 303(d) list for the Delta waterways, strict NPDES permit limitations and TMDL implementation plan requirements may be imposed if these pollutants are detected in the proposed discharge.

An analysis of “reasonable potential” for toxic pollutants was performed using available recent effluent data from the WWTP (1997 to 2000) and ambient water quality data for the Old River taken in 1994. The procedure used in this analysis was as specified in the State Implementation Plan (SIP). That procedure compares maximum observed effluent concentrations and maximum observed ambient concentrations with the water quality standards in the California Toxics Rule (CTR). Where these maximum observed concentrations exceed standards, “reasonable potential” is established. This analysis indicated that the existing effluent exhibits reasonable potential for two toxic pollutants (copper and bis (2-ethylhexyl) phthalate). This finding implies that effluent limits for these pollutants would be required in the next NPDES permit for the WWTP at the existing level of treatment.

Under the SIP, additional effluent and receiving water monitoring will be required for the full suite of EPA priority pollutants. Analysis of this data may result in a finding of “reasonable potential” for additional toxic pollutants.

The Regional Board, in a letter dated January 23, 2001, indicated that whole effluent toxicity test results indicates that the existing WWTP effluent has a reasonable potential to exceed ammonia toxicity objectives in the Basin Plan.

The proposed project includes a number of treatment processes features which will reduce the impact of the effluent discharge on DO, TOC, temperature, pathogens, trace metals and trace organics by further reducing their levels in the treated wastewater. These facilities include biological oxidation and nitrification facilities, tertiary filters, an upgraded disinfection system, and installation of a second high-rate diffuser to rapidly mix the proposed tertiary effluent into the Old River.

#### **Groundwater Quality**

Groundwater quality is generally adequate throughout the San Joaquin Valley and the Sacramento-San Joaquin Delta, although at shallow depths within the Delta the water is often saline and contains high levels of total dissolved solids (TDS) and dissolved minerals. High levels of TDS and salinity may adversely affect consumer acceptance of drinking water and may require additional treatment plant operations by municipal water suppliers. High TDS may also reduce the ability to implement local water management programs, such as wastewater recycling, and may reduce options for blending with other water supplies.

In general, the City’s groundwater quality exceeds the EPA’s secondary MCLs as a result of elevated sulfate and TDS. Secondary drinking water quality regulations pertain to those

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contaminants that affect taste, odor and color, but do not pose health risks. Groundwater quality of the upper zone of the Tulare Formation is of poorer water quality than the lower zone and consists of generally higher levels of sulfate, TDS, nitrate, boron and selenium. The upper zone groundwater quality in the Tracy area is affected by infiltration of saline water from the north and agricultural recharge. Groundwater quality in the Tracy area also is impacted by contamination from commercial and industrial land uses. However, these contamination sources are restricted to the upper zone and in some cases are being remediated.

### 4.6.2 REGULATORY FRAMEWORK

Both State and federal regulatory authority exists for the control of water quality in surface waters of California, including the San Joaquin River and the Sacramento-San Joaquin Delta. Key elements of the State and federal regulatory processes are described in this section. The basic approach used in both State and federal processes is to: (1) designate beneficial uses to be protected, (2) set water quality objectives that are protective of the most sensitive uses, and (3) control municipal, industrial, and other sources to meet these objectives. Municipal and industrial discharges to waters of the United States are controlled through effluent limits contained in waste discharge permits.

#### FEDERAL LAWS AND REGULATIONS

The United States Environmental Protection Agency (EPA) is the federal agency responsible for water quality management. EPA Region IX, with offices in San Francisco, is responsible for water quality management in California, Nevada, Arizona, Hawaii and the Pacific territories.

#### Clean Water Act

The Clean Water Act (“the Act”, 33 U.S.C. § 1251 et seq.) is the federal law that governs and authorizes water quality control activities by EPA. EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (40 CFR).

Section 303 of the Act requires States to adopt water quality standards for all surface waters of the U.S. consisting of two elements: (1) designated beneficial uses of the water body in question, and (2) criteria that protect the designated uses. Section 304(a) requires the EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria may be employed where numerical standards cannot be established or where they are needed to supplement numeric standards.

States are required to review and modify water quality standards every three years. In reviewing the standards on water quality limited segments (water bodies in which standards cannot be

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attained even with the application of technology-based controls as specified in the Act), States are required to perform a use attainability analysis if they wish to remove a designated use, adopt subcategories of uses which require less stringent criteria than are currently adopted, or designate a use that does not reflect the “fishable/swimmable” goals of the Act. In no case may States downgrade an existing beneficial use. Additionally, States are encouraged to adopt site-specific standards where local conditions warrant a change from statewide or national standards.

Section 303(c)(2)(b) of the Clean Water Act, which was added in the 1987 revisions, requires States to adopt numerical water quality standards for toxic pollutants for which EPA has published water quality criteria and which reasonably could be expected to interfere with designated uses in a water body.

### **National Toxics Rule and California Toxics Rule**

On December 22, 1992, EPA promulgated the National Toxics Rule (NTR) under the Clean Water Act to establish numeric criteria for priority toxic pollutants for California and 13 other States that were not in complete compliance with Section 303(c)(2)(b) of the Act (EPA, 1995). For California, the NTR established water quality standards for 42 pollutants for which 304(a) water quality criteria exist, but which were not covered under California’s statewide water quality regulations.

In May 2000, EPA issued the California Toxics Rule (CTR) that establishes standards for all the priority pollutants for which EPA has issued 304(a) numeric criteria and which are not already included in the December 1992 National Toxics Rule (EPA, 2000). The 304(a) numeric criteria are those Clean Water Act criteria, established by the EPA on a pollutant by pollutant basis, required to safeguard the chemical, physical, and biological integrity of a water body.

### **NPDES Permit Program**

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the Clean Water Act of 1972 to regulate municipal and industrial discharges to surface waters of the U.S. The discharge of wastewater to surface waters is prohibited unless an NPDES permit has been issued which allows that discharge. Each NPDES permit contains effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge, prohibitions on discharges not specifically allowed under the permit, and provisions which describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

### Pretreatment Requirements

EPA established pretreatment standards<sup>1</sup> to prevent the discharge into a Publicly Owned Treatment Works (POTW) of any pollutant that would interfere with, pass through untreated, or otherwise be incompatible with such treatment works (33 U.S.C. § 1317(b); 40 C.F.R. § 401.12(f)). To control the pollutants covered by general and specific regulatory prohibitions, each POTW over 5 mgd is required to develop and enforce specific local limits for discharges to the POTW. These local limits are then deemed to be Pretreatment Standards for the purposes of the Act. The development and implementation of local limits by POTWs is a federal requirement under the General Pretreatment Regulations of the Clean Water Act (40 C.F.R. § 403). EPA is responsible for enforcing the National Pretreatment Program at the federal level. At the State level in California, Pretreatment Program enforcement is the responsibility of the California Regional Water Quality Control Boards.

### Antidegradation Policy

The federal antidegradation policy has been in existence since 1968 and is designed to protect and maintain existing uses and water quality, and to provide protection for higher quality waters and national water resources (40 C.F.R. § 131.12). The policy directs States to develop and adopt a statewide policy that includes the following primary provisions: (1) existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than the quality necessary to support fishable and swimmable conditions, that quality shall be maintained and protected unless the State finds that allowing lower water quality is necessary to accommodate important local economic or social development; and (3) where high quality waters constitute an outstanding national resource, such as waters of national and State parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

### Section 303(d) Impaired Waters List and TMDLs

Under Section 303(d) of the Clean Water Act, States are required to develop lists of water bodies that will not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). The most recent Section 303(d) list in California was issued in 1998 (SWRCB, 1998) and was approved by USEPA in May, 1999. Sacramento-San Joaquin Delta waterways and the San Joaquin River are listed for a number of pollutants (refer to **Table 4.6-16**, below).

Section 303(d) requires that the State develop a total maximum daily load (TMDL) for each of the listed pollutants. A TMDL is the amount of loading that the water body can receive and still

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<sup>1</sup> EPA regulations define “pretreatment” as a reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. This reduction may be obtained by physical, chemical, or biological processes. 40 C.F.R. § 403.3(q).

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be in compliance with water quality objectives. The TMDL prepared by the State must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. TMDLs must be performed for all parameters and water bodies listed on the most recent 303(d) list for California.

### **National Safe Drinking Water Act**

As mandated by the Safe Drinking Water Act (SDWA, Public Law 93-523) passed in 1974, the U.S. EPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. EPA regulates these types of contaminants through the development of national primary and secondary Maximum Contaminant Levels (MCLs) for finished water. MCLs and the process for setting these standards were to be reviewed triennially. Amendments to the SDWA in 1986 and 1996 revised the schedules for EPA to develop certain drinking water MCLs and extended the review period to a 6-year cycle.

### **Disinfection/Disinfection By-Product Rules (D/DBPR)**

In the 1996 SDWA Amendments, Congress directed EPA to finalize the Stage 1 D/DBPR by the end of 1998 to lower the current maximum contaminant levels for total trihalomethanes (chloroform, bromodichloromethane, chlorodibromomethane, and bromoform) of 100 µg/L to 80 µg/L and to establish new MCLs for haloacetic acids (60 µg/L) and bromate (10 µg/L). This EPA action also established an action level for TOC concentrations (a DBP precursor) in drinking water treatment plant source water that will require enhanced coagulation and/or other treatment steps to minimize DBPs in the disinfected water.

### **Surface Water Treatment Rules**

The Enhanced Surface Water Treatment Rule (ESWTR) requires all surface water treatment systems to remove (or inactivate) 99.9 percent of *Giardia* and 99.99 percent of viruses through improved treatment and disinfection. The interim ESWTR finalized in December 1998 increases the requirements for source water pathogen removal by municipal drinking water treatment systems serving populations over 10,000. The rule established more stringent requirements for filter performance and turbidity removal including removal of up to 99.9999 percent of both *Giardia* and *Cryptosporidium*.

### **Coastal Zone Management Act**

The Coastal Zone Management Act (CZMA, 16 U.S.C. § 1451 et seq.) regulates land and water uses that may significantly affect the quality of coastal waters and habitats. The Act also requires the implementation of management measures for non-point sources of pollution to restore and protect coastal waters. The 1990 amendments to the CZMA allow the definition of “coastal zone” to extend inland “to the extent necessary to control shorelands, the uses of which

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have a direct and significant impact on the coastal waters”. This definition, when taken literally, may extend to all stretches of waterways that are tributary to coastal waters, including the Sacramento-San Joaquin Delta.

The CZMA requires federal, State, and local action. At the federal level, EPA and the National Oceanic and Atmospheric Administration (NOAA) are required to specify management measures to prevent water quality impacts from urban development, agriculture, forestry, and other land uses. At the State level, the SWRCB, in conjunction with the California Coastal Commission, is required to develop a coastal non-point source pollution control program. Furthermore, local governments are directed to implement non-point source pollution control and management measures whenever land use decisions are made.

### **Endangered Species Act**

The Endangered Species Act (ESA, 16 U.S.C. § 11001 et seq.) protects species of fish, wildlife, and plants that are in danger of, or threatened with extinction. The listing and proposed listing of various fish species that inhabit the San Joaquin River and Delta as either “threatened”, “endangered”, or species of special concern may affect discharges into waters found within the critical habitat of these species. Critical habitat includes areas containing biological and physical features essential to the conservation of the designated species. The U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) must be consulted before actions are taken which may adversely affect critical habitat.

### STATE LAWS AND REGULATIONS

In California, the State Water Resources Control Board (SWRCB) has broad authority over water quality control issues for the State. The SWRCB is responsible for statewide water quality policy development and exercises the powers delegated to the State by the federal government under the Clean Water Act.

Regional authority for planning, permitting, and enforcement is delegated to the nine Regional Water Quality Control Boards (RWQCB). The Regional Boards are required to formulate and adopt water quality control plans for all areas within the region. Regional Boards are required to establish water quality objectives in the water quality control plans. The RWQCB responsible for the San Joaquin River and the Sacramento-San Joaquin Delta is the Central Valley Regional Board (Region 5), headquartered in Sacramento.

Other State agencies with jurisdiction or involvement in water quality regulation in California include the Department of Health Services (drinking water regulations), the Department of Pesticide Regulation, the Department of Fish and Game, and the Office of Environmental Health and Hazard Assessment.

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### **Porter-Cologne Act**

The Porter-Cologne Water Quality Control Act (Act) is California's statutory authority for the protection of water quality (California Water Code § 13000 *et seq.*). Under the Act, the State must adopt water quality policies, plans, and objectives that will provide protection to the State's waters for the use and enjoyment of the people of California. The Act sets forth the obligations of the Boards pertaining to the adoption of water quality control plans (Basin Plans) and establishment of water quality objectives, and authorizes the SWRCB and RWQCBs to issue and enforce permits containing waste discharge requirements. Basin Plans are the regional water quality control plans required by both the Clean Water Act and the Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California.

### **Statewide Water Quality Control Plans (WQCPs)**

#### **Toxic Pollutants (Inland Surface Waters and Enclosed Bays and Estuaries Plan)**

In April 1991, the SWRCB adopted two statewide water quality control plans (the Inland Surface Waters Plan (ISWP) and the Enclosed Bays and Estuaries Plan (EBEP)), which included narrative and numerical objectives for allowable concentrations of toxic pollutants in the State's receiving waters. In September, 1994, as a result of a Sacramento Superior Court decision which ruled the plans invalid, the SWRCB withdrew the plans.

The SWRCB adopted its Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California on March 2, 2000. This State Implementation Policy (SIP) was approved by the Office of Administrative Law (OAL) on May 22, 2000, and was submitted to EPA Region IX for review and approval. Meanwhile, it is in effect under State law and is being implemented by the RWQCBs. The SIP outlines NPDES permitting procedures for meeting toxic pollutant objectives adopted in Basin Plans, the National Toxics Rule, and the California Toxics Rule. The SIP contains procedures for determining which pollutants must have effluent limits and the magnitude of those limits, the establishment of mixing zones, the control of chronic toxicity, and the establishment site-specific water quality objectives.

### **Temperature (Thermal Plan)**

The Thermal Plan was adopted by the SWRCB in January 1971, revised in June 1972, and is currently under review by the SWRCB. The Plan restricts discharges of thermal waste or elevated temperature waste to waters of the State. As it applies to the proposed Tracy discharge through a submerged high-rate diffuser, the Thermal Plan prohibits elevated temperature waste discharges which would increase ambient temperatures by more than 1 degree Fahrenheit (F) over more than 25 percent of the stream cross section, and elevated temperature waste discharges that increase surface water temperatures by more than 4 F in any location.

### **WQCP for the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary**

The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary was adopted by the State Board in 1991 (SWRCB, 1991). The Bay-Delta Plan establishes regulations and water quality control measures intended to protect beneficial uses in the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (the Bay-Delta). The Plan is reviewed every three years and a final revised Plan was released in May 1995 (SWRCB, 1995).

### **WQCP for the Sacramento-San Joaquin River Basins (Basin Plan)**

The Sacramento-San Joaquin Basin Plan, adopted by the Central Valley Regional Water Quality Control Board (CVRWQCB) on September 1, 1998, provides water quality objectives and standards for waters of the Sacramento River and San Joaquin River basins (CVRWQCB, 1998). The Basin Plan contains specific numeric water quality objectives for several toxic pollutants. These constituents include arsenic (10 µg/l), copper (10 µg/l), cyanide (10 µg/l), silver (10 µg/l), and zinc (100 µg/l). With the exception of arsenic, these objectives were superseded by the standards adopted in the California Toxics Rule. In addition, the Basin Plan and the Water Quality Control Plan for the Delta (SWRCB, 1995) contain specific numeric standards for Delta inflow and outflow, chloride (Cl<sup>-</sup>), electrical conductivity (EC), and temperature.

The San Francisco Bay Region Basin Plan was last amended in June 1995 (SFBRWQCB, 1995b). This Basin Plan establishes beneficial uses, water quality objectives and policies for the waters of San Francisco Bay. Actions in the Central Valley must not result in violations of water quality objectives in San Francisco Bay.

### **Nondegradation Policy**

In 1968 the SWRCB adopted the nondegradation policy (SWRCB Resolution 68-16) aimed at maintaining high quality waters in California. The nondegradation policy states that the disposal of wastes into the waters of the State shall be regulated so as to achieve the highest water quality consistent with maximum benefit to the people of the State and so as to promote the peace, health, safety, and welfare of the people of the State. The SWRCB has interpreted Resolution 68-16 to incorporate the federal antidegradation policy, which is applicable if a discharge, which began after November 28, 1975, will lower existing surface water quality.

### **Effluent Discharge**

The proposed Tracy discharge is subject to an array of federal and State regulatory requirements described above. Regulations affecting the City of Tracy will be described in waste discharge requirements established by the State of California and approved by the USEPA, as summarized below.

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### Waste Discharge Requirements (WDRs)

The wastewater discharge from the City of Tracy will be regulated under a NPDES permit to be issued by the CVRWQCB. The CVRWQCB order provides findings, discharge prohibitions, effluent limitations, provisions and self-monitoring requirements. The findings of the NPDES permit provide information about the design and operation of the treatment plant, protection of beneficial uses, and compliance with applicable standards.

The discharge prohibitions and limitations in the permit are designed to ensure the maintenance of public health and safety, protection of receiving water resources, and safeguarding of the designated beneficial uses. Discharge limitations define allowable effluent quantities for flow, biochemical oxygen demand (BOD), total suspended matter, residual chlorine, settleable matter, total coliform, oil and grease, pH, temperature, and toxic pollutants. Limitations also encompass dissolved minerals and toxicity to aquatic life. The provisions would provide stipulations for the disposal of solid materials, and limitations on effects caused to receiving waters. The permit would also specify the sampling, monitoring, and reporting requirements for compliance with waste discharge regulations. The monitoring program entails sampling influent, effluent, and receiving water.

### Recycled Wastewater Requirements

Wastewater reclamation in California is regulated under Title 22, Division 4 of the California Code of Regulations, which were promulgated in 1978 and are currently being revised. The intent of the regulations is to ensure protection of public health associated with the use of recycled water. The regulations establish acceptable levels of constituents in recycled water for a range of uses, and prescribe means for assurance of reliability in the production of recycled water. The California Department of Health Services (DHS) has jurisdiction over the distribution of reclaimed wastewater and the enforcement of Title 22 regulations. The RWQCB is responsible for issuing waste discharge requirements (including discharge prohibitions, and monitoring and reporting programs) and user re-use requirements associated with the implementation of wastewater reclamation projects.

#### CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

**Table 4.6-15** includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

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**TABLE 4.6-15  
PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Policy CO 1.1:</b> Manage wastewater disposal to meet applicable receiving water quality standards.	Yes	The project is anticipated to meet all applicable receiving water quality standards.
<b>Action CO 1.1.1:</b> Assess the impacts of both the Inland Surface Water Plan and the proposed South Delta Water Management Plan on the City's current disposal of treated wastewater into Old River.	Yes	The potential impacts of the project have been modeled and assessed.
<b>Policy CO 1.3:</b> Protect existing groundwater supplies from water quality degradation.	Yes	The project will not degrade the quality of existing groundwater supplies.
<b>Action CO 1.3.3:</b> Work with County to develop an action plan to manage and protect local and regional groundwater resources, based on the findings of the groundwater management study. The action plan should include requirements and a guide of techniques and facility designs that landowners, developers and public agencies can use to minimize water quality impacts.	Yes	The expansion of the WWTP includes designs that will minimize water quality impacts.
<b>Action CO 1.3.5:</b> All development projects and other planning area activities shall be reviewed for potential impacts on water quality. Appropriate mitigation measures should be imposed.	Yes	The project has been reviewed for potential impacts on water quality, and appropriate mitigation measures have been developed.

### 4.6.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

The value of water is determined by its potential uses. In turn, the uses that can be made of water are determined by its quality. Water of degraded quality may not adequately support uses deemed beneficial by State and federal authorities. The Section 303(d) list (SWRCB, 1998) of the Clean Water Act (CWA) requires states to identify water bodies with impaired quality with respect to supporting beneficial uses. This process has resulted in both the San Joaquin River and Delta waterways being listed as impaired due to a variety of pollutants and stressors (see **Table 4.6-16**).

The surface water quality impacts of the proposed expanded discharge from the City of Tracy wastewater treatment facility are dependent on a number of factors. These factors include:

- 1) Existing and projected effluent quality
- 2) Ambient conditions (flow and quality) in the receiving waters

#### 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

- 3) Type and configuration of diffuser used for effluent discharge
- 4) Distance from the point of discharge

The significance of the water quality changes associated with the proposed discharge will be determined based on whether the discharge would cause the following:

- 1) Violation of existing requirements of the City's NPDES permit that serve to avoid significant environmental impacts in accordance with State and federal requirements.
- 2) Violation of enforceable water quality standards contained in the Central Valley Basin Plan, statewide water quality control plans, or federal rulemakings applicable to California.
- 3) Inconsistency with State and federal antidegradation policies.

**TABLE 4.6-16  
1998 CALIFORNIA SECTION 303(D) LISTED WATER BODIES IN THE PROJECT AREA**

Water Body	Pollutant/Stressor	Listed Source
Delta Waterways	Chlorpyrifos	Agriculture Urban Runoff
	DDT	Agriculture
	Diazinon	Agriculture
	Electrical Conductivity	Agriculture
	Group-A Pesticides <sup>1</sup>	Agriculture
	Mercury	Resource Extraction (abandoned mines)
	Organic Enrichment/ Low Dissolved Oxygen	Municipal Point Sources Urban Runoff
	Unknown Toxicity	Source Unknown
Lower San Joaquin River	Boron	Agriculture
	Chlorpyrifos	Agriculture
	DDT	Agriculture
	Diazinon	Agriculture
	Electrical Conductivity	Agriculture
	Group-A Pesticides <sup>1</sup>	Agriculture
	Selenium	Agriculture
	Unknown Toxicity	Source Unknown
Stockton Deep Water Channel	Dioxin	Point Source (USEPA listing)
	Furans	Point Source (USEPA listing)
	PCBs	Point Source (USEPA listing)

1. Group-A Pesticides include the following organochlorine pesticides: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene. Many of these pesticides have been banned from use.

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The above criteria are consistent with the regulatory framework for water quality control in California, including the mandates and directions provided by the federal Clean Water Act and the Porter-Cologne Act.

### **Beneficial Uses of the San Joaquin River and Delta**

The beneficial uses of the San Joaquin River and the Delta include domestic, municipal, industrial, and agricultural water supply; recreation, aesthetic enjoyment; navigation; groundwater recharge; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources as provided by freshwater habitat (CVRWQCB, 1998). Protection and enhancement of existing and potential beneficial uses are goals of water quality planning. State and federal law mandate the protection of these uses, which are described in more detail below.

### **Recreation**

Water contact (water-dependent) recreation uses of the San Joaquin River and the Delta include swimming, wading, water-skiing, sport fishing and other recreational activities that involve a reasonable possibility of ingestion of water. Non-contact (water-enhanced) recreation uses include picnicking, sunbathing, hiking, camping, pleasure boating, hunting, bird watching, education and aesthetic enjoyment.

### **Municipal and Industrial Water Supplies**

Municipal water use in the San Joaquin River and Delta is primarily for drinking water supply to communities or individual water supply systems. In the Delta, diversion for municipal water supplies are made by Antioch (at the Antioch Water Works) Contra Costa Water District (intakes at Rock and Mallard sloughs, and the intake for Los Vaqueros Reservoir from Old River near Hwy 4), the State Water Project's (SWP) North and South Bay Aqueducts (at Barker Slough and Clifton Court Forebay, respectively), and the Central Valley Project's (CVP) Delta-Mendota Canal (intake at Tracy). Current delta diversions by SWP and CVP systems for municipal and industrial use are approximately 2.5 million AFY (DWR, 1995b).

Industrial use of San Joaquin River and Delta water is divided into two categories: service supply water and process supply water. Industrial service supply uses are defined as those that do not depend on water quality and include mining, plant cooling, hydraulic conveyance, gravel washing, fire protection and oil well re-pressurization. Industrial process supply uses are those related to the manufacture of products. Diversions for these uses are scattered throughout the San Joaquin and Delta areas, with the major industrial diversions located in the Pittsburg-Antioch area. A portion of the State and Federal Water Project diversions and Contra Costa Canal diversions are also used for industrial service and process supply.

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### Agricultural Water Supply

Extensive use is made of San Joaquin River and Delta waters for agricultural purposes. These uses include the irrigation of crops, orchards, and pastures, stock watering, support of vegetation for range grazing, and ranching and farming support operations. Annual water diversions from the Delta by SWP and CVP systems for agriculture are estimated (based on DWR and USBR data) to reach 4.3 million AFY by 2030 (DWR, 1995b). In addition, there are about 2,000 privately owned diversions for agricultural water supply scattered throughout the Delta (Sacramento, County of, 1997; CALFED, 2000). Most of the individual diversions are riverside turnouts (pumping stations) with an intake extending into the river.

### Aquatic Life and Wildlife

The San Joaquin River and the waterways of the Delta provide important habitat to a diverse variety of aquatic life and wildlife. This includes temporary habitat and migration routes for anadromous and other migratory species, as well as permanent habitat for resident species. Aquatic habitat ranges from fresh water in the upper reaches of both the San Joaquin River and Delta to brackish in the lower reaches, particularly during periods of low Delta outflow. Transition from one zone to the next is gradual, and the zones move up or downstream depending on tidal phase and the amount of fresh water entering the Delta. The amount and quality of water flowing through the Delta, as well as the amount and quality of food resources available to aquatic organisms, greatly influences the overall productivity of the area on an annual basis. The same is true for fish and other aquatic species living within the San Joaquin River system. Species of anadromous fish found in the area generally have higher water quality requirements than resident species.

The complex interface between land and water in the Delta provides rich and varied habitat for wildlife, especially birds. The Delta is particularly important to waterfowl migrating via the Pacific Flyway. More than one million waterfowl are frequently in the Delta at one time (DBW, 2001). Numerous species of mammals, non-game birds, reptiles, amphibians, and plants are also present in the area, but the abundance of most of these species is limited by the availability of suitable habitat. For additional discussion of aquatic and wildlife resources inhabiting the San Joaquin River watershed and Delta, see Section 4.8, Biological Resources.

### **Methodology**

As noted above, the analysis of surface water quality impacts resulting from the proposed discharge of treated effluent is largely based on mathematical modeling and numerical evaluations. These mathematical modeling studies are described in technical reports prepared by RMA, Inc. (**Appendix G**). The projected effluent quality and ambient data described previously is used to assess the aggregate effects of the proposed discharge on specific parameters. In general, reasonable estimates of worst-case conditions are assumed in the impact analysis to provide a conservative indication of water quality impacts. Examples include the use of low

## 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

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river flows, critical Delta configurations, elevated pH and ammonia levels, depressed dissolved oxygen and hardness values, etc. Continuous simulations of flow conditions derived from an extensive historic record of climatological conditions (1922 to 1995) were used to determine reasonable worst cases conditions. Several different Delta configurations and CALFED operational scenarios were assessed in the modeling effort to provide an understanding of the range of potential future outcomes.

### Near-field Analysis

For regulatory purposes, the Central Valley Basin Plan and the SIP allow consideration of a “mixing zone” in the vicinity of the diffuser. A mixing zone is a relatively small volume of water within which compliance with water quality objectives is not required. Instead, compliance with water quality objectives is required at the edge of the mixing zone. The Basin Plan and SIP each require that concentrations of toxic pollutants in the effluent be sufficiently low and the mixing zone dimensions to be sufficiently small to prevent lethality to passing organisms.

The near field water quality analysis performed for the City of Tracy discharge evaluated pollutant concentrations in the vicinity of the existing and proposed diffusers. The analysis assumes an equal flow split to the two diffusers. The Cornell Mixing Zone Expert System (CORMIX) plume model was used to perform the near-field water quality analysis and to evaluate initial dilution in the vicinity of the proposed diffuser. The CORMIX model was developed under a cooperative agreement between USEPA and Cornell University, and has been recommended for use in the permitting of point source discharges in several USEPA guidance documents, including the *Technical Support Document for Water Quality-Based Toxics Control*, 1991. The results of the CORMIX modeling for the Tracy discharge were checked against plume model results obtained using USEPA’s new Visual Plumes mixing zone model. This comparison indicated that the CORMIX model results predicted similar, albeit slightly greater, impacts than the Visual Plumes model. Therefore, the CORMIX results were used in the near field analysis to provide reasonable estimates of worst-case results.

The near-field analysis was based on the following assumptions:

- Critical low flows in the Old River (i.e., during the drought of the early 1990s; represents observed worst case since New Melones Reservoir was fully operational)
- Critical low velocities in the river during the discharge period
- Ambient concentrations reflective of reasonable estimates of worst case conditions in the vicinity of the discharge

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Near field changes in water quality have been evaluated in detail for the following parameters of concern:

- Temperature
- Ammonia
- Trace metals
- Trace Organics

### Far-field Analysis

The far-field analysis was designed to predict the fate of the wastewater and its impacts within the Bay and Delta system. The ultimate fate and water quality impacts of the treated effluent is influenced by the complex hydrology of the Sacramento – San Joaquin River Delta. An estimate of the Tracy treated effluent fraction within the Delta was computed to assess related impacts on ambient water quality. An estimate of the treated effluent component at major water supply export locations was computed to assess impacts on water supply quality. The major export locations include:

- Central Valley Project (CVP) intake at the Tracy Pumping Plant (Delta-Mendota Canal intake)
- State Water Project (SWP) intake at Clifton Court
- Contra Costa Water District (CCWD) intake to Los Vaqueros Reservoir from the Old River near Byron (State Highway 4)

In addition, the Old River near the discharge point was examined to estimate the fraction of Tracy effluent that accumulates during periods when flow is restricted by barrier operation.

The far-field water quality analysis was performed using a link node hydrodynamic mathematical model of the San Joaquin River and Delta. The models employed in the analysis were selected based on a proven track record of use in the analysis of hydrodynamics and water quality in the Bay-Delta. The link-node modeling system contains a hydrodynamic model that computes velocities and stage at 90-second intervals. The link-node tidally averaged water quality model simulates the long-term transport and fate of a discharge to the Delta system. The network representation of the Bay and Delta was developed jointly by RMA, DWR and others. The model was calibrated for flow and transport using EC or TDS (Smith and Durbin, 1989). The model simulates flow, stage and water quality based on simulations using the climatic conditions occurring over the 1922-1995 hydrologic year period. Monthly hydrologic data generated by the DWR operations models (DWRSIM) were used in the simulations. Two CALFED alternatives (the No Action and the Preferred alternatives) were used to cover a range of future Delta operation scenarios being considered in the ongoing CALFED evaluation of Delta operation (CALFED, 2000).

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A total of five Delta configurations were considered. These included (1) the present Delta configuration without barriers, (2) the present Delta configuration with the temporary Old River fish barrier, (3) the present Delta configuration with temporary South Delta barriers, and (4) an enhanced Delta configuration including an enlarged Clifton Court Forebay plus Byron intake and dredged channels with permanent south Delta barriers. Results from each of these configurations were evaluated over a long time period to determine to reasonable worst case impacts of the proposed project. Such conditions varied from constituent to constituent; as such, an across-the-board worst case Delta configuration cannot be identified.

The link-node model was used to compute the average daily fraction of Tracy treated effluent throughout the Delta and at export locations in a continuous simulation modeling run using observed climatological conditions for the 73-year period from 1922-1995. The parameters of concern which were evaluated in detail in the far-field analysis include

- Dissolved oxygen
- Total organic carbon
- Total dissolved solids
- Pathogens
- Trace elements
- Trace organics

The analytical methodology used in the far-field analysis was to estimate incremental increases in pollutants of concern at various locations of importance in the San Joaquin River and Delta. In the far-field analysis for most parameters, a worst-case assumption was made that the water quality constituents in the effluent discharge were conservative (i.e., did not decay with distance or with time after release through the diffuser). An exception to this assumption was ammonia and oxygen demanding material (e.g., BOD), which were assumed to exhibit first-order decay over time. The analysis of dissolved oxygen impacts of the proposed discharge in the Delta reflects this assumption.

Where existing water quality data is available, the incremental water quality changes described above were added to the current baseline concentrations to assess compliance with water quality objectives. Where existing data are not available, a qualitative analysis has been performed. The analysis of most trace elements and trace organics in the far field is limited by a lack of available ambient data.

### *Far-field Water Quality Model Specifications and Assumptions*

Model simulations were performed for the projected maximum City of Tracy dry weather flow plus wet weather increment for the five combinations of Delta alternatives, CALFED operation and Delta hydrology described above.

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A conservative tracer simulation was designed to trace the potential influence of the treated effluent. An arbitrary concentration of 100 was assigned to the treated effluent discharge while zero is assigned to all other sources. The simulated tracer concentration becomes the percentage of treated effluent originating from the discharge. This percentage was computed at each network node and withdrawal location.

### **Basis and Assumptions for Impact Analysis**

#### **Ambient Conditions**

Flow conditions in the Old River and downstream waters are influenced significantly by climatic conditions, tides, configuration of gates and barriers in Old River and the South Delta, and operation of the intake pumps for the State and federal water projects. Mathematical models (see description below) are used in this analysis to simulate flow conditions over a range of these conditions. Model output is used to approximate critical flow conditions for the water quality impact analysis.

Resulting water quality data quantifying conditions in the Old River and waters of the Delta has been described above. These summaries describe water quality information for a range of water year conditions. These summaries provide information regarding the frequency of occurrence of various water quality conditions (i.e., 10<sup>th</sup> percentile, 50<sup>th</sup> percentile or 90<sup>th</sup> percentile occurrence frequency) that is useful in the analysis of impacts.

#### **Treatment and Disposal Process**

As described in the Project Description (Section 3.0), the City of Tracy provides wastewater collection, treatment, and disposal for residences, businesses and industries within its service area. Current permitted flow is 9.0 mgd average dry weather flow (ADWF). An average of approximately 6.0 mgd of domestic wastewater is currently generated within the service area. Additionally, Leprino Foods is the only significant wet industry discharging in the City on the order of 0.5 mgd of food process water to the plant. At the Tracy WWTP, the domestic wastewater from the City and wastewater from Leprino are sent through a series of sequential treatment processes to achieve the desired effluent quality, which is currently a secondary level of treatment.

The purpose of the primary treatment is to remove large objects, grit, and easily settleable solids. The process consists of mechanical and manually operated bar screens to remove debris and large objects in the wastewater and is followed by an aerated grit chamber that captures sand and grit materials, which would otherwise damage downstream pumps. Readily settleable materials are removed at the primary clarifiers. Screenings and grit are hauled offsite to land disposal. After primary clarification, primary effluent is conveyed to secondary treatment, which oxidizes organic material within the wastewater. The WWTP utilizes an activated biological filter (ABF)

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and an activated sludge system. In this process, microorganisms reduce the organic concentration of the wastewater by converting the organic material to additional microbial biomass. Once the organic concentration is reduced, the biomass is settled out of the wastewater in secondary clarifiers.

After secondary clarification, wastewater is disinfected using chlorine, followed by dechlorination with sulfur dioxide (SO<sub>2</sub>) to remove residual chlorine concentrations. The treated effluent is then pumped 3.5 miles north of the WWTP and discharged through a submerged pipeline and diffuser into the Old River above its confluence with Paradise Cut. In addition, the plant maintains an emergency storage pond with a 24 million gallon (MG) capacity for emergency flow diversions. Solids collected from primary and secondary clarifiers are thickened and digested. The solids are first thickened using dissolved air flotation thickeners and then digested in anaerobic digesters. As a final step, the digested biosolids are transported to drying beds for dewatering. When the solids have been sufficiently dewatered, they are transported off-site for beneficial reuse and application as soil amendments.

The City plans to increase the level of treatment in the plant expansion by the addition of filtration and nitrification unit processes. The City also plans to add a second high-rate diffuser to more rapidly and efficiently disperse the treated effluent in Old River.

As noted above, the proposed project would increase the level of treatment and increase the rate of discharge from the City of Tracy wastewater treatment plant. The effluent quality from the existing and the proposed City of Tracy wastewater treatment plant is summarized in **Table 4.6-17**.

### *Description of Diffuser*

The proposed discharge would occur through two diffusers located at the bottom of Old River (one existing, one proposed). The diffusers consist of a pipe with multiple ports of smaller diameter than the main pipe spaced evenly along its length. Treated effluent would be rapidly mixed into the river through the jet action of the diffuser ports. The water quality changes caused by the effluent would decrease within a short distance from the diffuser, creating a gradient in concentration ranging from undiluted effluent at the diffuser port to a dilute mixture of effluent with river water at the edge of the mixing zone.

The assumed diffuser configuration includes two diffusers, one existing and one proposed, as follows:

- Diffuser perpendicular to side bank
- Diffuser widths of 70 and 77 feet, respectively
- River widths of 165 and 145 feet, respectively
- Diffuser ports mounted with valves to prevent back-flow into diffuser

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- Ports directed at an angle of five degrees above horizontal
- Diffusers approximately centered in river bottom (as shown in Figure 3-10)

The impacts of the proposed discharge of treated effluent diminish with distance from the point of discharge. In the water quality analysis described below, the area closest to the point of discharge in Old River is called the “near-field” area. The near field area encompasses the immediate transition or “mixing zone” in which the treated effluent mixes rapidly with the receiving water. The “far-field” area extends thousands of feet from the point of discharge to locations of downstream interest (i.e., drinking water intakes).

##### **Near-field Impacts**

For a number of effluent parameters (e.g., total suspended solids, turbidity, coliform organisms, etc.), the impact of the discharge of high quality tertiary effluent from the proposed City of Tracy treatment facilities into the Old River would result in a localized improvement in water quality. The low levels of these constituents in the proposed discharge would have a localized diluting effect on the river within the mixing zone. For instance, the total suspended solids concentration in the treated effluent would be less than 5 mg/l. Suspended solids levels in the San Joaquin River typically exceed this value. For turbidity, the predicted quality of the treat effluent would range from an average of 2 NTU to a maximum of 5 NTU. Ambient turbidities in the San Joaquin River also typically exceed this value. Total coliform levels in the treated effluent would typically be less than 2.2 MPN per 100 milliliters, with maximums of 23 MPN/100 ml. Fecal coliform levels in the effluent would be less than these values. Median fecal coliform levels in upstream waters (San Joaquin River at Mossdale) exceed 125 MPN/100 ml, while ninety percent of the time, fecal coliform levels exceed 48 MPN/100 ml.

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**TABLE 4.6-17  
EXISTING AND PROJECTED EFFLUENT QUALITY**

Parameter	units	Existing Effluent Concentration		Projected Effluent Concentration	
		Average	Maximum	Average	Maximum
CBOD5	mg/l	20	30	5	20
TSS	mg/l	15	30	5	20
pH		7.3	7.5	7.0	7.5
Ammonia	mg/l	15	30	0.5	3.0
Total Coliform	MPN/100 ml	23	1,600	2.2	23
Fecal Coliform	MPN/100 ml	<23	240	<2.2	<23
Total Dissolved Solids	mg/l	1,000	1,200	1,000	1,200
Hardness	mg/l	290	310	290	310
Turbidity	NTU	5	20	2	5
Temperature	Deg F	77	85	77	85
Trace Elements					
Arsenic	ug/l	3	4	2.0	4.0
Cadmium	ug/l	0.05	0.1	0.05	0.1
Chromium	ug/l	1.7	2.4	0.5	1.0
Copper	ug/l	6	10	5	10
Lead	ug/l	5	19	0.5	1.0
Mercury	ug/l	0.015	0.02	0.01	0.015
Nickel	ug/l	2.5	5	2.5	5
Selenium	ug/l	0.8	1.0	0.5	1.0
Silver	ug/l	0.6	1.0	0.2	0.5
Zinc	ug/l	30	84	30	50
Cyanide	ug/l	3	5	3	5
Trace Organics	(ug/l)				
Bromodichloromethane	1	1	1.6	1	1.5
Chloroform	6	6	17	5	15
Bromoform	0.2	0.2	0.3	0.2	0.3
Dichlorobromomethane	0.2	0.2	0.3	0.2	0.3
1,4-dichlorobenzene	0.2	0.2	0.3	0.2	0.3
Dichloromethane	2	2	5	2	5
Toluene	0.4	0.4	0.8	0.4	0.8
Dieldrin	0.001	0.01	0.01	ND	ND
bis 2 (ethylhexyl) phthalate	11	11	18	11	18
Phenol	4	4	5	4	5
Tetrachloroethylene	0.7	0.7	2.5	0.7	2.5
Trichloroethylene	0.2	0.2	0.3	0.2	0.3
Ethylbenzene	0.2	0.2	0.3	0.2	0.3
Alrdrin	0.01	0.01	0.01	ND	ND
Endosulfan	0.02	0.02	0.02	ND	ND
Heptachlor	0.008	0.008	0.008	ND	ND

NTU = Nephelometric Turbidity Units

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The near-field analysis for sensitive parameters (temperature, ammonia, and trace metals) was performed using computed minimum flows and velocities for the Old River. The flow and velocity in Old River are directly affected by the permanent and temporary barriers in the South Delta. Also, tidal action causes reverse flows and prolonged periods of near slake water (several hours) at low river flows. **Table 4.6-18** summarizes tidally averaged minimum flow and velocity conditions occurring in Old River near the Tracy discharge point during various seasons under different Delta configurations and CALFED operating schemes. A review of **Table 4.6-18** indicates minimum average velocities of less than 0.5 feet per second for all conditions evaluated and minimum average velocity of 0.2 feet per second during summer months when South Delta barriers are in place.

**TABLE 4.6-18**  
**MINIMUM FLOWS AND VELOCITIES AT THE TRACY DISCHARGE POINT**  
**(UNDER DIFFERENT DELTA OPERATIONAL CONDITIONS AND SEASONS)**

Condition	December-March		April-May		June-September		October-Nov	
	Flow cfs	Vel fps	Flow cfs	Vel fps	Flow cfs	Vel fps	Flow cfs	Vel fps
CALFED No action, no barriers	849	0.42	905	0.44	718	0.36	876	0.43
CALFED No action, Old River fish barrier	849	0.42	917	0.45	718	0.36	586	0.30
CALFED No action, Temporary barriers	849	0.42	919	0.45	340	0.16	584	0.30
CALFED No action, Permanent barriers	834	0.41	1,008	0.49	343	0.16	810	0.41
CALFED Preferred alt, permanent barriers	833	0.41	1,012	0.49	342	0.16	469	0.40

The initial dilution of the effluent plume was evaluated for the range of flows and velocities listed in **Table 4.6-18**. Minimum dilution conditions were observed at low river velocities. The modeling analysis indicated that initial dilution is dominated by the high exit velocity into a slow moving body of water. The plume typically surfaces within 40 feet of the diffuser. Information in the table indicates initial dilution ratios under an average effluent discharge rate of 16 mgd ranging from 21:1 to 46:1.

### PROJECT IMPACTS AND MITIGATION MEASURES

#### Near-field Impacts

##### Temperature Increase

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

River temperature data for the San Joaquin River at Mossdale was used in this analysis. Temperatures at this location are representative of the water temperatures in the South Delta. The river temperature data set at Mossdale consists of over 112,000 hourly data points taken

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between 1984 and 2000. For effluent temperature, data from the City of Manteca was used due to the strength of the data set (n=1200) and the technical judgment that the Tracy effluent temperature values would be expected to be similar to the data from a neighboring facility.

Since Old River resembles a slow moving stream under controlled flow conditions (i.e., barriers in place), a heat balance temperature analysis was performed. The CORMIX dilution model was run for a range of flow conditions as listed in **Table 4.6-18**. The analysis evaluates the temperature increase that will result from the discharge of warmer treated effluent into a cooler Old River during critical low flow conditions. The analysis considers the impacts associated with the use of two diffusers, a condition that will reduce the temperature impacts over the current condition.

Under low flow conditions, the temperature increase resulting from the proposed discharge will produce a 0.7 to 3.0 degree Fahrenheit temperature increase at the edge of a 21:1 mixing zone. This incremental temperature change is not in compliance with the requirements of the California Thermal Plan, which limit such changes to 1 degree F over 25 percent of the river cross section. This requirement exists to avoid creation of potential thermal barriers to migrating fish species. The proposed project will not violate the Thermal Plan requirement that surface temperatures not be changed by more than 4 degrees F.

The predicted worst-case temperature impact of the discharge is not in compliance with existing water quality plans and policies (Basin Plan and Thermal Plan) and is therefore potentially significant.

### *Mitigation Measure*

**MM 4.6.1** Section 7 consultation with the NMFS and USFWS shall be required in conjunction with Corps Section 10 Rivers and Harbors act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to special-status fish species. Consultation with CDFG would also be required to comply with the California Endangered Species Act. As part of the consultation process, a biological assessment shall be prepared by a fisheries biologist. The biological assessment shall evaluate potential temperature effects of final project design. A Mitigation Plan shall be prepared that includes measures to avoid or mitigate long-term thermal impacts to fish species that occur as a result of this project. Mitigation measures that may be required include redesign of the diffuser to reduce temperature affects; conduct of post-implementation monitoring to determine if temperature plumes are resulting in fish avoidance; and/or incorporation of measures to prevent out-of-compliance releases when water temperatures are too high. Mitigation measures will be designed to reduce temperature impacts to less than 1 degree Fahrenheit change over 25% of the river cross section pursuant to the standards set forth in the Thermal Plan; the City will work with the regulatory agencies to determine the times of the year that these

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mitigation measures will be implemented. Discharge temperature limits may be specified for the project in a Biological Opinion issued under Section 7 of the Endangered Species Act, as conditions of the Corps permit, and/or as conditions imposed through the NPDES permit issued by the CVRWQCB.

*Timing/Implementation:* Prior to commencing construction in Old River  
*Enforcement/Monitoring:* National Marine Fisheries Service, U.S. Fish and Wildlife Service, Army Corps of Engineers, City of Tracy Department of Public Works, and the California Department of Fish and Game.

Implementation of the above mitigation would reduce this impact to **less than significant**.

### Ammonia

The following analysis of ammonia toxicity deals with acute toxicity (which pertains to short term, e.g., one day, exposures of aquatic life to ammonia) and chronic toxicity (which pertains to long term, e.g., 30 day, exposures).

The concentrations of ammonia resulting from the proposed Tracy treatment facility are anticipated to range from less than 0.2 milligrams per liter (mg/l) in the warm summer months to 3 mg/l in the winter. The toxicity of ammonia varies significantly with pH. Typical effluent pH will be 8.0 or lower. Based on the most recent USEPA national criteria for ammonia in fresh water, an effluent ammonia concentration of 3.0 mg/l may cause acute toxicity at a pH of 8.3 or greater (at an exposure of one day). At an effluent pH of 8.0, an effluent ammonia concentration of 5.6 mg/l would be the safe threshold for acute toxicity. Therefore, the effluent from the proposed Tracy treatment facility would not be expected to cause or contribute to ammonia acute toxicity at any point in the mixing zone in Old River.

The USEPA criterion for chronic toxicity for ammonia is also pH dependent, ranging from 0.43 mg/l at a pH of 8.7 to 2.1 mg/l at a pH of 7.6. These pH values (7.6 and 8.7) correspond to the minimum and maximum monthly average values for the Old River and south Delta. Highest pH values are predicted to occur in the summer months (June through September). Available data indicates that the maximum monthly ammonia level in the receiving waters is 0.22 mg/l. Therefore, at observed maximum ammonia and pH values in Old River and downstream waters, ammonia chronic toxicity is not predicted to occur.

The maximum projected monthly average effluent ammonia for the Tracy facility is 0.5 mg/l. This concentration is predicted to be lower than this value in the warm summer months, when conversion of ammonia to nitrate will be most readily achieved in the proposed Tracy treatment facility. If a monthly average effluent concentration of 0.5 mg/l ammonia is assumed as a worst case for this analysis, the dilution model indicates that the dilution of this concentration to 0.43 mg/l and lower will occur within two feet of the Tracy diffuser. The area of this mixing zone

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would be less than one percent of the cross sectional area of the river. Therefore, the proposed discharge would not be predicted to have significant acute or chronic impacts on aquatic life due to ammonia levels in the discharge. This impact is considered **less than significant**.

### Trace Metals

The estimated maximum effluent concentrations of trace metals from the proposed City of Tracy tertiary treatment facilities are described below in **Table 4.6-19**. These projected effluent concentrations were estimated based on review of effluent data from tertiary treatment plants (secondary treatment plus filtration) throughout California, including the Central Valley, San Francisco Bay area and Southern California.

**TABLE 4.6-19**  
**ESTIMATED MAXIMUM TOTAL RECOVERABLE TRACE METALS CONCENTRATIONS**  
**FROM PROPOSED CITY OF TRACY WWTP**

Trace Metal	Estimated Max Total Recoverable Concentration (µg/L)	Minimum Relevant Water Quality Chronic Criterion (µg/L)	Source of Criterion
Arsenic	4.0	10	Basin Plan
Cadmium*	0.1	1.3	CTR
Chromium*	1.0	101	CTR
Copper*	10	5.0	CTR
Lead*	1.0	1.17	CTR
Mercury	0.015	0.050	CTR
Nickel*	5	28.9	CTR
Selenium	1.0	5.0	Basin Plan & CTR
Silver*	0.5	1.05	CTR
Zinc*	50	65	CTR

Notes from table 4.6-19

\* Criteria shown for these trace metals are chronic criteria expressed as dissolved concentrations in ambient waters based upon a water hardness value of 50 mg/L as CaCO<sub>3</sub>. Minimum observed hardness in the Delta waters near the proposed discharge is 36 mg/l as CaCO<sub>3</sub>, while the hardness concentration exceeded at least 90 percent of the time is 52 mg/l as CaCO<sub>3</sub>. Effluent hardness averages 290 mg/l as CaCO<sub>3</sub>, which will influence hardness concentration in the near field.

In comparing the projected effluent concentrations with numeric water quality objectives for the San Joaquin River contained in the Basin Plan and/or the California Toxics Rule (see **Table 4.6-2**), most of the metals would achieve compliance with these objectives without consideration of dilution. Copper is an exception. Therefore, it is necessary to assess whether the projected effluent copper concentration would be expected to cause or contribute to the violation of the existing water quality objective for copper.

The calculation to assess whether the proposed discharge would be expected to cause or contribute to a violation of the water quality objective for copper is dependent on the ratio of effluent to river flow, the hardness of the effluent and river water, and the concentration of copper in effluent and ambient waters (at the point of discharge).

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The allowable credit for dilution, in accordance with the SIP, is based on the ratio of the effluent flow to a low river flow. In setting a dilution credit for assessment of compliance with acute objectives, a river flow of 1Q10 is employed (lowest daily flow in ten years). The flow ratio for assessment of acute compliance is approximately 14:1, based on a critical low river flow of 340 cfs and an average dry weather discharge of 16 mgd (24.6 cfs). In setting a dilution ratio for analysis of chronic objectives, a 7Q10 river flow is assumed (lowest one week average flow in ten years). The flow ratio for chronic assessment is conservatively estimated to be 25:1.

As noted, minimal data exists for most trace metals in the Old River and South Delta waters. Copper values in South Delta waters range from a median value of 3.0 to 90<sup>th</sup> percentile values of 4.4 ug/l as dissolved copper. Available data also indicate that the lowest hardness concentrations in the San Joaquin and Old River range from a minimum of 36 to a 10<sup>th</sup> percentile value of 52 mg/l as CaCO<sub>3</sub>. Hardness modifies the water quality objectives for copper and a number of other trace metals. Assuming a hardness value of 50 mg/l as CaCO<sub>3</sub>, a reasonable assumption for chronic toxicity analysis, the freshwater chronic objective for copper is 5.0 mg/l. This assumed hardness is conservative near the discharge point (i.e., in the mixing zone), since effluent hardness is projected to average 290 mg/l as CaCO<sub>3</sub>.

Beyond the consideration of dilution, for copper (and other trace metals), USEPA recommends use of dissolved/total translators and/or site-specific water effects ratios (WER) to better evaluate trace metal impacts. Based on experience in similar water bodies, a “translator” (dissolved to total copper ratio in Old River) of 0.5 and a dissolved WER of 2.0 (which means that actual toxicity in the Old River would be one half of the toxicity observed in clean lab water tests) could reasonably be assumed. If either of these assumed values were used, independent of dilution considerations, the proposed Tracy discharge would have no potential for copper toxicity. With consideration of projected values for hardness, dilution, a translator value, and a water effect ratio for the Tracy discharge, it is concluded that copper in the proposed effluent will not create an adverse impact in the receiving water. This impact is therefore considered **less than significant**.

### Trace Organics

The projected trace organic concentrations in the future Tracy discharge are unknown. Based on review of data from other municipal treatment plants in California, potential trace organics in the proposed tertiary effluent may include diazinon, lindane, trihalomethanes, and bis-2 (ethylhexyl) phthalate. The presence of most of these pollutants in the proposed City of Tracy discharge cannot be confirmed until specific measurements of the discharge are made. For diazinon and lindane, which are included on the 303(d) list for the Delta waterways, strict NPDES permit limitations and TMDL implementation plan requirements may be imposed if these pollutants were detected in the proposed discharge. For the trihalomethanes (chloroform, Dibromochloromethane and Bromodichloromethane), it is projected that the City of Tracy discharge will have detected concentrations of these constituents under the proposed project.

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Due to a lack of effluent and ambient data on trace organics and the uncertainty regarding the presence of these pollutants in the proposed discharge, the ability to assess compliance with water quality objectives for these pollutants is severely limited. As noted above, 303(d) listed trace organics will be regulated under the City's NPDES permit if appropriate to preclude significant adverse impacts on receiving waters. If the City is given a dilution credit per the SIP for the calculation of effluent limits for trace organics, it is projected that compliance with such limits will not be a problem. For instance, for the trihalomethanes, which have human health-based CTR standards and a 30-day averaging period, a dilution credit of 25 to 1 or greater would apply, which would lead to effluent limits that would be achievable. For this reason, this impact is considered to be **less than significant**.

### Pathogens

The proposed treatment system for the City of Tracy will produce an effluent that meets strict Title 22 requirements for unrestricted reclamation uses. These requirements include low turbidities, a median total coliform concentration of 2.2 MPN/100 ml and a maximum of 23 MPN/100 ml. Treatment facilities that meet these Title 22 requirements have been shown to achieve very effective removal of pathogens, including viruses. The proposed disinfection process will be a chlorination/dechlorination system that is capable of removal of *Cryptosporidium parvum* and *Giardia lamblia*, two pathogens of serious concern to drinking water suppliers.

Given the proposed treatment process and available initial dilution that the discharge will receive, the proposed discharge will not adversely impact beneficial uses at the point of discharge or in downstream waters. Therefore, impacts associated with pathogens are considered **less than significant**.

### **Far-field Impacts**

#### Dissolved Oxygen

The dissolved oxygen simulation was designed to estimate the incremental change in dissolved oxygen that would result from the addition of the City of Tracy discharge. The Delta region experiences low dissolved oxygen levels due in part to oxygen-consuming materials entering the region from agricultural returns and from adjacent Delta channels. Poor circulation, exacerbated by the temporary south Delta facilities, contributes to the dissolved oxygen sags that occur in this area. The Old River temporary barrier is installed in the fall to improve circulation and reduce the DO sag at Stockton for fishery benefits.

Carbonaceous and nitrogenous BOD represents the oxygen consuming potential of the treated effluent. The impacts of the proposed treatment plant upgrade and increased rate of discharge on dissolved oxygen levels within the southern Delta were evaluated by comparing simulation results for the two cases: (1) existing BOD and ammonia load and (2) projected BOD and

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ammonia load for the proposed facility. For the existing case, a 5-day C-BOD of 20 mg/L was assigned to the Tracy treated effluent (permitted average dry weather flow of 9 mgd). A factor of 2.5 was assumed to convert 5-day to ultimate BOD. This conversion factor is associated with the decay rate of 0.1 (base e) [i.e.,  $F = 1/(1-e^{-0.5})$ ;  $U-BOD = 20 * F = 50$  mg/L]. The N-BOD was based on a maximum anticipated ammonia nitrogen concentration of 20 mg/L. A factor of 4.57 was assumed for converting to N-BOD (i.e.,  $N-BOD = 92$  mg/L).

For the proposed conditions (16 mgd ADWF), 5-day CBOD concentrations of 6 mg/l and 10 mg/l were assumed for the dry weather and wet weather increments. The resulting ultimate CBOD values were 15 and 25 mg/l. Dry and wet weather ammonia values of 1 and 2 mg/l were assumed, with resulting NBOD values of 4.6 and 9.2 mg/l, respectively. Within the model, a decay rate of 0.1 / day (base e) was assumed for both nitrogenous and carbonaceous BOD.

Oxygen uptake associated with all environmental conditions not attributable to the Tracy treated effluent was represented by an oxygen sink rate. A rate of approximately 2,000 mg/M<sup>2</sup>/day was selected through modeling iterations to produce computed ambient dissolved oxygen levels that approximated observed levels. The oxygen simulation is a simplification of oxygen dynamics and is only intended to estimate the relative impacts of the Tracy discharge. It is not intended to assess absolute oxygen levels throughout the Delta.

BOD and dissolved oxygen kinetics are temperature dependent. For this analysis, observed monthly temperatures for Old River shown in **Table 4.6-20** were assigned to all Delta nodes.

**TABLE 4.6-20**  
**TEMPERATURE DATA FOR OLD RIVER USED IN DO ANALYSIS**

Month	Temperature, C	Month	Temperature, C
January	10	February	12
March	14.5	April	17
May	20	June	22
July	24.5	August	24
September	22	October	18
November	13	December	10

Re-aeration was computed from the inter-tidal hydrodynamics for low wind conditions. A low wind speed of 3 feet per second (fps) was assumed since the primary emphasis of the analysis are the periods of low dissolved oxygen that are associated with periods of low re-aeration. A wind speed of 3 fps is the approximate 10-percentile speed at Stockton.

Each Delta operation alternative was simulated assuming present and future BOD and ammonia loadings corresponding to the existing and future Tracy discharge scenarios. The results of this analysis are provided for three locations in the south Delta: Old River, Middle River and

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Grantline Canal. For all cases, the proposed future Tracy discharge results in improved dissolved oxygen conditions in the south Delta, as compared to existing conditions.

The lowest dissolved oxygen levels occur in Middle River as flows migrate toward the San Joaquin River in the summer. The dissolved oxygen levels near the 5.0 mg/l Basin Plan objective improve by 0.4 mg/l under the proposed discharge. Minimum dissolved oxygen levels in the South Delta are not projected to be less than 5.0 mg/l for the proposed project with upgraded treatment. Therefore, far-field impacts associated with dissolved oxygen are considered **less than significant**.

#### **Total Dissolved Solids**

Impacts on downstream TDS concentrations were estimated using the results of the far-field modeling analysis. The following results are based on the assumption that the Tracy discharge will increase from 9 to 16 mgd and the TDS concentration in the Tracy discharge will remain constant at 1,000 mg/l. The TDS of the highly treated effluent from the City of Tracy WWTP is expected to be reduced from the 1,000 mg/l average levels (1,200 mg/l, max.) to the 650 mg/l over the term of the City's wastewater master planning time horizon (2010), as presented in the City of Tracy's Wastewater Treatment Plant Facilities Plan (CH2M Hill, May 2001). The primary means by which this will be accomplished will be through source control as it relates to the mix of its community water supply. Currently, the city uses a blend of groundwater and some surface water. As imported water supplies are blended into the city's water supply, displacing groundwater of higher salinity, the resulting salinity of the wastewater will be correspondingly reduced. In the short term, although the city is planning to incorporate approximately 9,000 acre-feet per year of groundwater into its community water supply mix, the salinity of the resulting wastewater is not anticipated to be increased above the 1,000 mg/l level (salinity of the water supply is normally increased by between 200 and 300 mg/l as it is transformed to wastewater, and the groundwater salinity is typically less than 700 mg/l). It is not anticipated to be reduced substantially below 1,000 mg/l until additional source control measures are adopted, and imported surface water supplies are fully developed for use in Tracy. Consequently, the modeling of TDS for current and future conditions is established at the 1,000 mg/l level. The projected (99<sup>th</sup> percentile) incremental changes in TDS at two downstream water system intake locations for which baseline data is available will be as shown in **Table 4.6-21**.

**TABLE 4.6-21**  
**TDS IMPACTS OF PROPOSED PROJECT AT CVP AND CCWD DIVERSION POINTS**

<b>CVP Diversion Point</b>	
Wet season (median level of 192 mg/l)	Increase = 8.6 to 12.3 mg/l
Dry season (median level of 324 mg/l)	Increase = 7.6 to 10.9 mg/l
<b>CCWD Diversion Point</b>	
Wet season (median level of 197 mg/l)	Increase = 2.4 to 3.7 mg/l
Dry season (median level of 376 mg/l)	Increase = 2.1 to 3.3 mg/l

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The incremental changes in TDS levels at the above water supply diversion points will not result in concentrations which approach or exceed the secondary drinking water standard of 500 mg/l. On a percentage basis, the projected changes in the wet season, when TDS levels in the Delta are typically lowest, range from 1.0 to 6.4 percent, while the projected changes in the dry season average 1.0 percent. This increment of change would be difficult to detect through intensive ambient monitoring, given the variability in TDS concentrations in the Delta. Therefore, impacts of the proposed discharge on TDS are considered **less than significant**.

### TOC

Based on the results of the far-field modeling analysis described above, the 99<sup>th</sup> percentile incremental changes in TOC levels at the downstream water supply intake locations with baseline data for TOC will be as shown as **Table 4.6-22**. These projections are based on an assumption of a TOC concentration of 10 mg/l in the treated effluent:

**TABLE 4.6-22**  
**TOC IMPACTS OF PROPOSED PROJECT AT CVP AND CCWD DIVERSION POINTS**

<b>SWP Diversion Point</b>	
Wet season (median level of 2.8 mg/l)	Increase = 0.02 to 0.05 mg/l
Dry season (median level of 3.5 mg/l)	Increase = 0.02 to 0.05 mg/l
<b>CCWD Diversion Point</b>	
Wet season (median level of 3.1 mg/l)	Increase = 0.02 to 0.03 mg/l
Dry season (median level of 3.4 mg/l)	Increase = 0.02 to 0.03 mg/l

The projected increases in TOC levels at the above water supply diversion points would not significantly increase ambient TOC levels. Maximum percentage increase predicted in any season or location is 1.0 percent. The predicted changes in TOC are less than analytical detection limits for TOC in natural waters (0.2 to 1 mg/l). Therefore, the predicted changes in TOC levels would not be measurable through ambient monitoring techniques and are considered **less than significant**.

### Pathogens

As described previously, the pathogen content of the proposed discharge will be very low due to the nature of the proposed treatment facilities (filtration and disinfection). Total coliform levels will typically be lower than 2.2 most probable number per 100 milliliters (MPN/100 ml). Removal of pathogens of concern (*Giardia*, *Cryptosporidium* and viruses) is effective with the proposed treatment facilities. The effluent pathogen levels will be lower than pathogen levels that exist in ambient waters. Therefore, the fraction of Tracy effluent at various locations downstream of the discharge point is projected to reduce pathogen concentrations, by a very small increment (less than 0.3 percent reduction). As a result, impacts of the proposed discharge on pathogens are considered **less than significant**.

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### Trace Metals

Impacts on downstream copper concentrations were estimated using the results of the far-field modeling analysis. The following results are based on the assumption that the average copper concentration in the Tracy discharge will be 5 ug/l. It is further assumed that all of the copper in the Tracy discharge is dissolved and will remain dissolved after release to Old River (a conservative assumption). The projected incremental changes in median dissolved copper at downstream locations for which baseline data is available will be as follows:

CVP Intake Wet season (median level of 2 ug/l)                      Increase = 0.03 to 0.04 ug/l

The range of projected increases is based on the analysis of the different operational scenarios. Based on the analysis of limited copper data, it is not anticipated that ambient levels will approach or exceed water quality objectives for copper in the Delta waterways.

The analytical detection limit for copper in ambient water is 0.2 to 0.5 ug/l. Therefore, the predicted changes in copper associated with the proposed project are not measurable and impacts are considered **less than significant**.

### Trace Organics

The far-field model was used to predict impacts of the increased Tracy discharge of 16 mgd at the CVP and CCWD diversion points under various CALFED and barrier scenarios. The trace organics examined in this analysis included three trihalomethanes (chloroform, bromodichloromethane, and dibromochloromethane) that have been detected in the existing Tracy effluent. The most significant concentration changes were observed for chloroform (increases ranging from 0.05 to 0.25 micrograms per liter (ug/l)). These concentrations did not approach or equal the California Toxics Rule standards of 5.7 ug/l for chloroform and were significantly lower than the drinking water standards that are an order of magnitude higher. The predicted changes in the trihalomethanes listed above are not significant. Similar results are predicted for other trace organics that may be detected in the Tracy discharge. Therefore, impacts of the proposed discharge on trace organics are considered **less than significant**.

### **Construction Impacts**

**Impact 4.6.2** Construction of the project could result in temporary impacts to water quality. This would be a **potentially significant** impact.

Construction of the pipeline and the new facilities on the WWTP would include excavation, grading, soil stockpiling, and vehicular activity on unpaved roads that could expose soils to erosion and potential stormwater runoff into nearby surface waters. In addition, construction of the new diffuser in Old River would require placement of a temporary containment area (coffer dam) around the work area within the river. The containment area would consist of two rows of

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sheet piles with steel panels between the sheet piles and at the end of the rows. All work in Old River would take place within the containment area to minimize turbidity in Old River and improve safety. The new pipeline would be installed in a trench excavation on the river bottom. The pipeline trench would be backfilled with imported gravel and rock then covered with native material from the excavation. Water within the containment area would be pumped out and clarified before being returned to Old River. These construction activities may result in impacts to water quality, including short-term elevated turbidity. Impacts to surface water quality during construction activities could also result from an accidental release of a hazardous material (e.g. diesel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, or lubricating grease). These impacts could be significant and would be subject to mitigation.

**MM 4.6.2** Construction of the project will require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to satisfy federal and state regulatory requirements. The SWPPP would include a range of measures and Best Management Practices (BMPs) to minimize potential for stormwater runoff and accidental releases into surface waters during construction. Elements of the SWPPP may include, but are not limited to, the following:

- BMPs for erosion control such as grading management techniques, drainage ditches, straw bales, gravel filter berms, dikes, filtering devices, or silt fences, or netting, as appropriate;
- Use of silt curtains in Old River prior to beginning construction activities;
- An environmental training program for all field personnel to communicate environmental concerns and appropriate work practices, including spill prevention and response measures;
- Identification of areas for refueling and vehicle maintenance activities and hazardous materials storage away from sensitive areas.

*Timing/Implementation:*      *The SWPPP must be completed prior to beginning construction. Other measures must be implemented prior to beginning construction or during construction as appropriate.*

*Enforcement/Monitoring:*      *Central Valley Regional Water Quality Control Board, City of Tracy Department of Development and Engineering Services.*

Implementation of the above mitigation measure would reduce impacts to surface water quality from construction activities to a **less than significant** level.

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### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

#### **Cumulative Setting**

This section addresses the cumulative impacts of the proposed project and other related projects in the Sacramento-San Joaquin Delta. Cumulative impacts are the direct and indirect impacts of a proposed project considered in combination with the impacts of past projects, other current projects and reasonably foreseeable future projects.

The assessment of cumulative impacts takes into account not only impacts identified as significant, but also those identified as less than significant for individual projects that may become significant in a collective sense when considering the co-occurrence of multiple projects. Criteria for selecting related projects for the cumulative impact analysis are the following:

- The project must be sufficiently related to the proposed project either by location in the Sacramento-San Joaquin Delta region, or by production of similar types of impacts on similar resources.
- The project must be reasonably foreseeable.
- The specifics of project design or operation must be known or predictable.

Projects that fit these criteria are the following:

- City of Manteca Wastewater Quality Control Facility (WQCF) Expansion
- City of Lathrop Wastewater Treatment/Recycling Plant (WRP-1) Expansion
- Mountain House Community Services District—New WWTP and Discharge
- Sacramento Regional County Sanitation District (SRCSD) Wastewater Treatment Plant Expansion
- Continued Agricultural and Urban Storm Water Discharges
- Total Maximum Daily Load (TMDL) Program

This assessment utilizes information from EIRs and other public documents that disclose the environmental effects of the projects listed above, as well as material on the impacts of the proposed project previously presented. A brief description of each project is provided, followed by a summary of possible water quality impacts associated with the project. A brief summary of the potential water quality impacts of the proposed project to the related projects is presented as well. Finally, a discussion of the potential cumulative water quality impacts of all projects combined is presented.

### Related Project Summaries

#### City of Manteca Wastewater Quality Control Facility (WQCF) Expansion

The Manteca Wastewater Quality Control Facility (WQCF) is a regional plant serving the cities of Manteca and Lathrop in southern San Joaquin County. The facility is a combined biofilter-activated sludge plant producing secondary effluent that is either land-applied for agricultural irrigation or discharged to the San Joaquin River upstream of the Mossdale Bridge. The facility has undergone two major renovations in the last 15 years with the most recent expansion project completed in 1992. Although operating below its current design capacity, all remaining capacity has been committed to short-term development within the existing service area. Based on current allocations, WQCF is expected to reach capacity within 2-3 years (Years 2002-2003). The Phase III/IV Expansion Project (Project) is designed to increase the WQCF capacity along with improving solids handling processes, developing on-site nitrification-denitrification facilities, and amending the General Plan to enable land use and zoning re-designation of a 5.6-acre parcel from Light Industrial to Public/Quasi Public (EDAW, 2000).

The current design capacity of the Manteca WQCF is 6.95 million gallons per day (mgd) average daily wastewater flow (adwf). Through November 1998, plant flows have averaged approximately 5.6 mgd divided as follows: City of Lathrop: 0.7 mgd; City of Manteca: 4.9 mgd. Based on existing capacity commitments and projected growth within the service area, a Phase III expansion in plant capacity to 9.87 mgd is proposed. This increase in plant capacity is expected to meet the wastewater treatment needs of the service area through 2012. The project includes the expansion of the plant aeration facilities and the construction of nitrification/denitrification facilities. The project will also include the conversion of the existing plant chlorination-dechlorination disinfection process to an ultraviolet light (UV) system. To improve solids handling operations at the WQCF, construction of a new anaerobic digester-cogeneration system, mechanical dewatering facility, and biosolids storage area are also scheduled under the Phase III/IV Project (EDAW, 2000). Construction of the project is anticipated to begin in fall 2001 and be completed in summer 2002.

Potential water quality impacts associated with the WQCF Phase III/IV expansion are described in the project's Environmental Impact Report (EDAW, 2000) and include the following:

- Localized, near-field increases in San Joaquin River water column and surface water temperatures due to proposed effluent discharge.
- Localized, near-field increases in ammonia, turbidity (total suspended solids), trace metals, and trace organics concentrations in the San Joaquin River due to proposed effluent discharge.
- Far-field increase in dissolved oxygen concentration in the San Joaquin River due to proposed nitrification and denitrification of effluent discharge.

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- Far-field increase in total dissolved solids (TDS) concentration of less than 0.01 percent in the San Joaquin River due to proposed effluent discharge.
- Far-field increase in total organic carbon (TOC) concentration of less than 0.001 percent in the San Joaquin River due to proposed effluent discharge.
- Localized, short-term increase in total dissolved solids (TDS) and organics concentrations in storm water due to project construction activities (grading, excavation, and use of fuels and chemicals).

#### **City of Lathrop Wastewater Treatment/Recycling Plant (WRP-1) Expansion**

The City of Lathrop currently treats and disposes its wastewater at two facilities: a City-owned treatment plant located in the Crossroad Business Park (i.e., Wastewater Treatment/Recycling Plant No. 1 (WRP-1)), and the Manteca Water Quality Control Facility (WQCF). The City presently generates approximately 0.8 million gallons per day (mgd) of wastewater. Approximately 95 percent of this wastewater is conveyed to the Manteca WQCF, with the remainder going to WRP-1. The City of Lathrop has a contractual relationship with the City of Manteca whereby 14.7 percent of the Manteca WQCF's existing and future expanded capacity is allocated for Lathrop flows. The design capacity of the existing Manteca WQCF is 6.95 mgd, thus providing Lathrop with a capacity of 1.02 mgd (14.7 percent of 6.95 mgd). Flows from Lathrop to Manteca currently average approximately 0.77 mgd, or 0.25 mgd less than the allocated capacity. Approximately 0.03 mgd of wastewater generated within the City of Lathrop is treated at the City's existing WRP-1, with a design capacity to process an average daily flow of 0.6 mgd. Disinfected and nitrified effluent from the plant is discharged to three 2.4-acre evaporation/percolation (E/P) ponds for disposal. Actual percolation rates observed in the E/P ponds have been much lower than originally anticipated. A 1998 geotechnical investigation of the E/P ponds found that the lower infiltration rates were primarily due to a lower transmissivity of the underlying aquifer than originally reported. The investigation concluded that the existing E/P ponds could accommodate a maximum discharge of approximately 0.06 mgd, less than one-third of the originally anticipated 0.2 mgd collective capacity of the three E/P ponds. Since this flow is significantly lower than anticipated, the City is investigating disposal options that include obtaining additional land for percolation, relocating the existing disposal areas, and /or discharging to the San Joaquin River (Nolte, 2000).

In addition to the realized reduced capacity of the E/P ponds, the City of Lathrop has experienced rapid residential and industrial growth during the past several years, a situation that necessitates an increased capacity to process wastewater. The City also has approved large-scale community plans that have the potential to add substantially to area growth. The City's population is approaching 10,000 and the West Lathrop Specific Plan (WLSP), which was adopted in February 1996 and is the most substantial development planned in the City, would add up to an additional 30,000 residents. All of these factors necessitated the update and revision of the City's existing Water Master Plan (1992) and Wastewater Facilities Master Plan (1996). Additionally, the City has made a commitment in its General Plan to maximize the use of reclaimed wastewater. For

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these reasons, the City has prepared a combined Master Plan that addresses water, wastewater and reclaimed wastewater (Nolte, 2000). The Wastewater Treatment and Disposal Plan section of the Master Plan document discusses future wastewater disposal methods available to the City and identifies a recommended disposal strategy that integrates the use of reclaimed water, the discharge of treated effluent to surface water, and the conveyance of wastewater to the Manteca WQCF.

The purpose of the proposed City of Lathrop WRP-1 expansion project is to provide adequate wastewater treatment capabilities sufficient to treat wastewater flows that would be generated by existing and planned future populations within the City of Lathrop service area. At build-out, the City of Lathrop is projected to generate approximately 11.5 mgd of wastewater. The main component of the City's integrated wastewater disposal strategy is the maximized use of recycled water on 1,022 acres of irrigated land within the City. Once the recycled water demand is met, the City would maximize the use of its allocated capacity at the Manteca WQCF. (At build-out, the City would discharge 2.2. mgd to the Manteca WQCF. This represents 0.75 mgd above the current Lathrop allocation under the Manteca WQCF Phase III/IV Expansion Project). Lastly, when the recycled water demand and the Manteca WQCF allocation have been met, the City would discharge the remaining treated effluent to the San Joaquin River. The proposed project includes a number of features designed to minimize or eliminate the impact of treated effluent discharge on surface water quality. A tertiary treatment system, including nitrification/denitrification, coagulation, filtration, and ultraviolet light disinfection, will be employed to achieve treated effluent of sufficient quality to be suitable for unrestricted use as per California Department of Health Services criteria. Disinfected, tertiary recycled water not used for public and commercial landscape irrigation is proposed for discharge to the San Joaquin through a high-rate diffuser system that will rapidly mix the treated effluent with river water.

Potential surface water quality impacts associated with this project are described in the Notice of Preparation of a Program Master Environmental Impact Report for the Water, Wastewater and Reclaimed Wastewater Master Plan for the City of Lathrop (City of Lathrop, 1998) and include the following:

- Minor impacts to surface water quality of the San Joaquin River. A description of potential water quality impacts is provided in the Final Environmental Impact Report for the project, which was adopted by the City Council in mid 2001. Effluent from the expanded wastewater treatment/recycling plant will be required to comply with local, State, and federal standards, and therefore should not jeopardize the protection and enhancement of existing and potential beneficial uses.

#### **Mountain House Community Services District**

The Mountain House Community Services District has been formed to serve the new community of Mountain House in western San Joaquin County. The community is currently under construction, and will be producing wastewater for treatment and disposal within the next year.

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The community will be served by a sewer collection system and an advanced wastewater treatment plant capable of producing water meeting Title 22 standards for unrestricted reuse. The community is projected to produce approximately 5.4 mgd, average dry weather flow at buildout, approximately 2020. The first phase of development is projected to produce about 0.5 mgd, and between 500 and 800 acre-feet/year of recycled water. Ultimately at buildout, annually, the community will produce approximately 5,000 to 7,000 acre-feet per year of recycled water. The District plans to use approximately 1,155 acre-ft of that treated water for irrigation of about 300 acres of landscaped areas in the development and discharge the rest. The District has obtained an NPDES Permit from the Central Valley RWQCB to discharge its advanced treated effluent into Old River. The treatment processes proposed by MHCS D are as follows:

- Pond treatment followed by dissolved air flotation
- Filtration
- Chlorination for disinfection

Beyond the initial phase of development, the secondary treatment process will be converted to Sequencing Batch Reactors instead of ponds and DAF.

While the MHCS D has a discharge permit, its ability to actually implement its discharge is contingent on the completion of extensive discharge studies in the Old River demonstrating that the discharge will comply with the appropriate water quality standards and criteria. Consequently, we anticipate that the discharge of effluent from MHCS D will not significantly adversely affect beneficial uses in Old River.

#### **Sacramento Regional County Sanitation District (SRCSD) Wastewater Treatment Plant (WWTP) Expansion**

The existing SRCSD WWTP is designed for an average dry weather flow of 181 mgd. Existing treatment processes include primary sedimentation, pure oxygen activated sludge with secondary clarification (secondary treatment), chlorination/dechlorination and discharge to the Sacramento River near Freeport through a high-rate diffuser. The discharge to the river is controlled to maintain a minimum instantaneous dilution of 14 to 1. Typical average dilutions during critical dry periods exceed 30 to 1. Based on population growth estimates within the SRCSD service area, a projected average dry weather flow of 218 mgd is expected by the year 2020. SRCSD has completed a wastewater treatment master planning process to explore alternative treatment and disposal options. The master plan recommendations are to expand the existing regional treatment system and continue discharge to the Sacramento River.

Construction of the expansion project is anticipated to begin in 2003 and be completed in summer 2006.

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Potential water quality impacts associated with the SRCSD WWTP expansion are described in the Master Plan (Carollo, 2001) and include the following:

- Localized, near-field increases in Sacramento River water column temperatures due to proposed effluent discharge.
- Localized, near-field increases in ammonia, trace metals, and trace organics concentrations in the Sacramento River due to proposed effluent discharge.
- Minor far-field increases in concentrations of total dissolved solids (TDS), TOC, and trace elements in the Delta waters due to proposed effluent discharge.

The location of the SRCSD discharge point is sufficiently remote from the proposed Tracy discharge that the near-field impacts will have no cumulative impact. The far-field impacts of the SRCSD discharge will have a minor cumulative impact in Delta waters.

#### **Storm Water Runoff**

As development continues to occur in the region, the amount of urban runoff generated will continue to increase. Typical constituents found in urban runoff at greater levels than from undeveloped and uncultivated lands include: copper, lead, zinc, nutrients, organic constituents, and oxygen demanding substances. Residential urban development generally produces significant lower concentrations of most of these constituents than industrial or commercial development (City of Tracy, 2000).

The highest concentrations of pollutants commonly attributed to urban storm runoff are carried by runoff produced by smaller more frequent storms at the beginning of larger storms, and/or at the early weeks of the rainy season. The initial runoff that is known for producing the highest concentrations of pollutants is often referred to as the "first flush." The City of Tracy is proposing improvements to its existing storm drainage system (i.e. the Westside Channel Outfall System) including detention basins. These basins allow pollutants to settle or be intercepted prior to being released into downstream waters (i.e. Old River). In addition to urban runoff, agricultural runoff would also continue to be generated in association with agricultural uses in the area.

#### **State of California TMDL Program**

The State of California Total Maximum Daily Load (TMDL) Program establishes a process that provides a framework for identifying load reductions or other actions needed to attain water quality standards (i.e., water quality goals to protect aquatic life, drinking water, and other beneficial uses). The Clean Water Act Section 303(d) established the TMDL process to guide application of state standards to individual water bodies/watersheds. The process includes three steps:

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1. Identify Quality Limited Waters – California must identify and prepare a list [Section 303(d) list] of waters that do not or are not expected to meet water quality standards after applying existing required controls (e.g., secondary treatment of municipal wastewater).
2. Establish Priority Waters/Watersheds – California must prioritize waters/watersheds and target high priority waters/watersheds for TMDL development.
3. Develop TMDLs – For each listed water body, California must develop a TMDL that will describe load reductions to achieve water quality standards, allowing for seasonal variations and an appropriate margin of safety. A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect individual water bodies.

The State Water Resources Control Board (SWRCB) is the agency responsible for implementing the TMDL process in California. The U.S. Environmental Protection Agency (EPA) provides federal oversight to the process by reviewing and approving both the Section 303(d) list of quality-limited waters and each TMDL. If EPA disapproves lists or TMDLs, EPA is required to establish the lists and/or TMDLs.

TMDLs should address all significant sources of listed pollutants, including point sources, nonpoint sources, and naturally-occurring sources. A TMDL is the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources and natural background pollutants, and an appropriate margin of safety. TMDLs must clearly identify the links between the water body use impairment and or threat of concern, the causes of the impairment or threat, and the load reductions or actions needed to remedy or prevent the impairment. TMDLs are developed to provide an analytical basis for implementing pollution controls, land management practices, and restoration projects needed to protect water quality. The State of California is required to include approved TMDLs and associated implementation measures in its state water quality management plans, NPDES permits and Basin Plans. USEPA regulations require that NPDES permits be consistent with wasteload allocations in approved TMDLs.

The pollutants listed below are on the 1998 Section 303(d) list for the Sacramento-San Joaquin Delta, the receiving water for the City's proposed discharge. These are the pollutants that the Regional Board, State Board and USEPA have identified as impacting or potentially impacting uses in the Delta. Significant effort has been expended to ensure that this list is comprehensive and complete.

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<u>303(d)-listed pollutants in Sacramento-San Joaquin Delta</u>	<u>Basis for Listing</u>
Mercury	Bioaccumulation in Fish
Diazinon	Aquatic Toxicity
Group-A Pesticides	Bioaccumulation in Fish
Electrical Conductivity	Impacts to Water Supplies
Unknown Toxicity	Aquatic Toxicity
Dissolved Oxygen (Stockton Deep Water Channel)	Barrier to Fish Migration

The Central Valley Regional Board has initiated efforts to develop Delta TMDLs for mercury, diazinon, and dissolved oxygen at various locations in the Delta. TMDLs for the other listed pollutants will be developed according to the schedule shown in the 1998 Section 303(d) list, but in no case later than 2011.

The overall impact of the development and implementation of TMDLs will be to reduce loadings of pollutants of primary concern to the Delta to the point that water quality objectives are achieved. Each TMDL will separately consider available scientific information in a quantitative fashion in establishing load reduction plans. The specific outcomes of these TMDLs, in terms of the reductions to be required on individual sources are highly uncertain at this time. The TMDL process must be carried out before judgements can be made regarding the most equitable and cost-effective load reduction plan. It would be premature to assume any specific level of reduction for a specific source prior to completion of the individual TMDLs.

In the end result, however, there is a high degree of certainty that water quality will be protected, since the regulatory system established under the Clean Water Act will require that load reductions are achieved and water quality standards are met. The Act requires iterations in the load reduction process until standards are achieved or new standards are adopted. By design, the TMDL process is intended to have a long-term beneficial cumulative impact that will eliminate or otherwise control the pollutants of greatest concern in listed waters. In practice, the success of TMDLs in fulfilling these goals is largely unproven.

### **Cumulative Impacts and Mitigation Measures**

#### **Cumulative Impacts Assessment of Surface Water Quality**

**Impact 4.6.3** From a conservative (i.e., worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants that the project would contribute to.

The cumulative impacts of the proposed project, in combination with the above-described projects, are not directly quantifiable. Significant uncertainties exist regarding the future configuration and operation of Delta facilities. Additionally, numerous programs and projects are planned or are in progress to improve flow conditions, increase and improve in-stream and riparian habitat, and improve water quality over the next several decades. However, it is not

#### 4.6 SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

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possible to quantify the cumulative beneficial and detrimental impacts of these projects with any rigor.

A point of view held by some posits that CALFED programs and policies are intended to improve both water quantity and quality in the Bay-Delta system, and thus enhance overall ecosystem health and further water management for beneficial uses in the region. Regulatory pressure exists under the Clean Water Act (e.g., Section 303(d) program) to eliminate violations of water quality standards over the next 15 to 25 years. Safe Drinking Water requirements will ensure that finished water provided to users is safe and reliable.

Each project will be required to assess these impacts under CEQA. Increased monitoring and accounting of ambient conditions, including flow and water quality will provide the basis for future regulatory controls. The regulatory system under the Clean Water Act is geared to prevent significant changes in water quality. It is anticipated that the results of monitoring will be used to assess adverse trends in important water quality parameters, and that the results of that work will be used in the CEQA process and in regulation of future projects to ensure that water quality and beneficial uses are protected in accordance with the mandates of the Clean Water Act and the California Water Code. On the other hand, growth and development in the Central Valley will place increased pressure on water supplies and will increase loadings of some pollutants to surface waters.

Given the above uncertainties, the determination of the significance of future cumulative impacts on surface water quality is problematic. From a conservative (i.e., worst-case standpoint), it may be projected that cumulative future impacts may be potentially significant for one or several 303(d)-listed pollutants. If they occurred, these potentially significant impacts would be largely the result of a failure of a federal, state and local effort in TMDLs to achieve the success that is mandated under the Clean Water Act.

##### *Mitigation Measure*

Because this issue is addressed through the broad state and federal programs, there is no project specific mitigation measure proposed. This is considered a **significant and unavoidable** impact.

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**SECTION 4.7  
GEOLOGY AND SOILS**

This section discusses the geology of the project site and general vicinity, and analyzes issues such as the potential exposure of people and property to geologic hazards, landform alteration, and erosion.

This section is based on information contained in the UMP (City of Tracy, 1993a), UMP EIR (City of Tracy, 1993b), literature prepared by the California Division of Mines and Geology (CDMG), information from the U.S. Natural Resources Conservation Service, and mapping published by the U.S. Geologic Survey.

### 4.7.1 EXISTING SETTING

#### REGIONAL AND LOCAL GEOLOGY

San Joaquin County is located near the geographic center of California in the San Joaquin Valley (valley). The valley is bordered on the east by the Sierra Nevada Mountain Range that consists primarily of crystalline rocks, and on the west by the Diablo Range tier of the Coast Range Mountains which consists of sedimentary and metamorphosed sedimentary rocks. The Sierra Nevada block has been tilted westward, caused by faulting and uplifting of the eastern edge. The western boundary of the Sierra Nevada block is overlain by sedimentary deposits of the valley.

The Coast Ranges form a barrier between the Great Valley and the Pacific Ocean. The Ranges evolved as a result of folding, faulting, and accretion of diverse geologic terrains, and are composed primarily of sedimentary and metamorphic rocks that are sharply deformed into complex structures. They are broken by numerous faults, the San Andreas Fault being the most notable.

The northwest side of the valley in the Tracy area is underlain by Tertiary and Pre-Tertiary sedimentary and crystalline rock. These rocks are overlaid with the Pliocene-Pleistocene Tulare Formation, Pleistocene terrace deposits, and Pleistocene-Holocene alluvium and flood-basin deposits.

Within the Tulare Formation is the Corcoran Clay Member, also known as E-clay. The unconsolidated deposits above the E-clay are called the upper section of the Tulare Formation and the deposits below the E-clay are known as the lower section. The depth of the E-clay increases eastward (Hotchkiss and Balding 1971).

#### FAULTS AND SEISMICITY

The Sierra Nevada and Coast Ranges possess active and potentially active fault zones. Major active faults occur to the east, west, south, and north of the project site. The Sierra Nevada/Owens Valley Fault Zones bound the eastern edge of the Sierra Nevada block and comprise a complex of both active and potentially active fault segments. The San Andreas Fault Zone occurs in the Coast Range and contains large Quaternary fault segments each with a different tectonic behavior. Numerous potentially active faults also occur in the eastern and central Coast Range west and south of the site. Portions of the Great Valley, Ortigalita-Tesla,

## 4.7 GEOLOGY AND SOILS

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Calaveras, Greenville, Hayward, Concord-Green Valley, Monterey Bay-Tularcitos, Point Reyes, and Rinconada Faults are considered active and potentially active.

An “active fault” is defined, for the purpose of this evaluation, as a fault that has had surface displacement within Holocene time (about the last 11,000 years). The definitions of “potentially active” vary widely. A widely accepted definition of potentially active is a fault showing evidence of displacement older than 11,000 years and younger than 1.6 million years (Pleistocene). Faults showing evidence of displacement older than 1.6 million years are usually classified as “inactive”.

Earthquakes can cause strong ground shaking that may damage property and infrastructure. The severity of ground shaking at any particular point is referred to as intensity and is a subjective measure of the effects of ground shaking on people, structures, and earth materials. The intensity of shaking generally decreases with distance away from the source of an earthquake. The level of intensity is commonly defined by comparison to the Modified Mercalli Scale that subjectively categorize the intensity on the basis of observed effects of seismic shaking on people and objects (see **Table 4.7-1**). Quantitative measurements of the level of ground motion during an earthquake are made by strong-motion seismographs that measure the acceleration of objects at the ground surface caused by seismic shaking. These measurements are made relative to, and are expressed as a fraction of, the acceleration of gravity.

### **Local Seismic Activity**

Generally seismic activity in Tracy has been limited to low to moderate ground motions from earthquakes within the area. None of these earthquakes have had a measurable magnitude greater than 3.9 on the Richter Scale within Tracy.

No active earthquake faults are known to exist within the project area, however, there are a number of inactive faults and suspected faults within several miles of the project site. In addition, two inactive earthquake faults, the Black Butte Fault and the Midway Fault, are known to exist within the project area. These faults are described below and shown in **Figure 4.7-1**.

### **Black Butte Fault**

The Black Butte Fault is not identified within an Earthquake Fault Zone and is not currently considered to be active. However, some documentation suggests movement during the Pleistocene age.

**TABLE 4.7-1  
MODIFIED MERCALLI INTENSITY SCALE FOR EARTHQUAKES**

<b>Richter Magnitude Scale</b>	<b>Modified Mercalli Scale</b>	<b>Effects of Intensity</b>
0.1-0.9	I	Earthquake shaking not felt.
1.0-2.9	II	Shaking felt by those at rest.
3.0-3.9	III	Felt by most people indoors; some can estimate duration of shaking.
4.0-4.5	IV	Felt by most people indoors. Hanging objects rattle, wooden walls and frames creak.
4.6-4.9	V	Felt by everyone indoors; many estimate duration of shaking. Standing autos rock. Crockery clashes, dishes rattle, and glasses clink. Doors open, close & swing.
5.0-5.5	VI	Felt by all who estimate duration of shaking. Sleepers awaken, liquids spill, objects displaced, weak materials crack.
5.6-6.4	VII	People frightened and walls unsteady. Pictures & books thrown, dishes/glass are broken. Weak chimneys break. Plaster, loose bricks & parapets fall.
6.5-6.9	VIII	Difficult to stand, waves on ponds, cohesionless soils slump. Stucco & masonry walls fall. Chimneys, stacks, towers and elevated tanks twist & fall.
7.0-7.4	IX	General fright as people are thrown down. Hard to drive, trees broken, damage to foundations and frames. Reservoirs damaged, underground pipelines broken.
7.5-7.9	X	General panic, ground cracks, masonry & frame buildings destroyed. Bridges destroyed, dams, dikes & embankments damaged. Railroads bent slightly.
8.0-8.4	XI	Large landslides, water thrown, general destruction of buildings, pipelines destroyed, railroads bent.
8.5+	XII	Total nearby damage, rock masses displaced. Lines of sight/level distorted. Objects thrown into air.

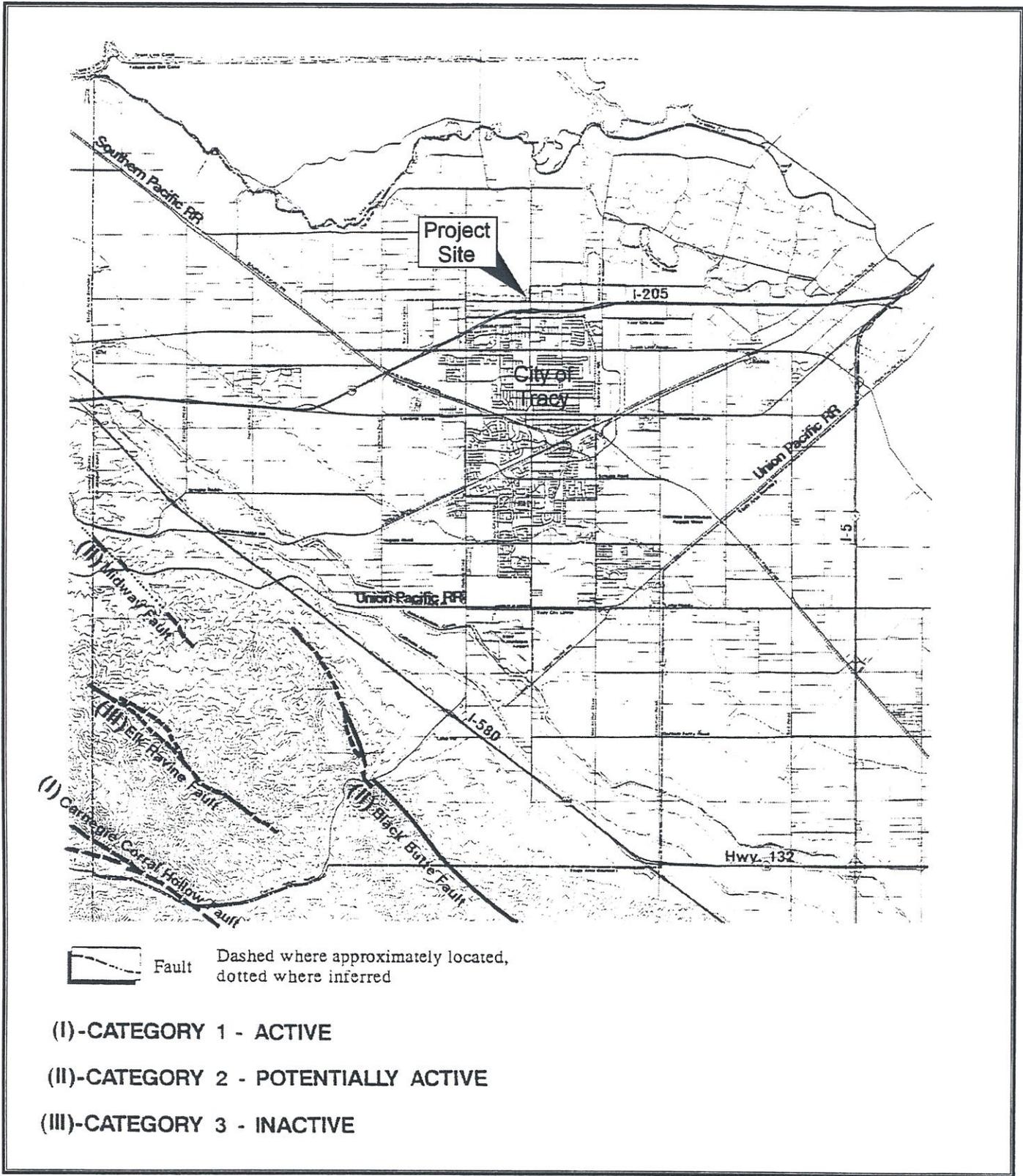
Source: California Division of Mines and Geology

### **Midway Fault**

The Midway Fault is a northwest-trending fault that has been mapped approximately five-and-a-half miles southwest of the project site. No information regarding recent movement was available for review, although springs and closed depressions were mentioned along its trace (PMC, 1997). The Midway Fault is not included within an Earthquake Fault Zone.

### **Other Faults**

The greatest potential for significant ground shaking at the site is from maximum credible earthquakes occurring on the active Calaveras, Hayward, San Andreas, or Greenville faults. However, the discovery of evidence suggesting recent movement on the previously considered inactive Carnegie/Corral Hollow Fault could alter this conclusion. The Carnegie/Corral Hollow fault is approximately 18 miles long and trends in a northwest-southeast location along the southern boundary of the Lawrence Livermore Laboratory Site 300. The maximum credible earthquake likely to be assigned to this fault will be on the order of Richter magnitude of 6.5.



**FIGURE 4.7-1**  
 FAULTS IN THE VICINITY OF THE PROPOSED PROJECT

As a consequence, it is likely that activity along the fault may increase the estimated peak site acceleration of the Black Butte fault.

Subsequent to the completion of the UMP (City of Tracy, 1993a) and UMP EIR (City of Tracy, 1993b), the Department of Conservation Division of Mines and Geology compiled a bibliography of geology and seismology reports and maps reassessing the seismic exposure of the Tracy region. This reassessment identifies the thirty-kilometer (km) coast Range-Central Valley blind-thrust fault zone along the western edge of the Valley. This area represents an active seismogenic zone capable of generating moderately large earthquakes in the Tracy region. The characteristic earthquake magnitude for the 30-km long fault segment centered on Tracy involves a potential Moment Magnitude MW 6.7 corresponding with a close epicentral distance of seven to eight kilometers. This new information, however, does not exceed the estimated maximum earthquake potential for the City as described in the UMP EIR.

### SOILS

Within the project area, soils consist primarily of Capay Clay, which is formed in moderately fine and fine textured alluvium derived from sandstone, shale or other mixed rock sources. The UMP EIR (City of Tracy, 1993b) identifies soils at the project site as having excess water; Capay Clay soils are known for slow to very slow permeability and high available water capacity. In addition, the UMP EIR identifies soils in the project area as having moderate to high expansive potential, low to moderate liquefaction potential, and low settlement potential.

### MINERAL RESOURCES

Primary mineral resources in San Joaquin County consist of sand and gravel (aggregates) and natural gas. Aggregate resources known to occur in the TPA are located south of the City along the Corral Hollow Creek alluvial fan, while natural gas resources are located in the northern portion of the City generally north of Eleventh Street. As identified in the Notice of Preparation, the project would have a less than significant impact on mineral resources.

## 4.7.2 REGULATORY FRAMEWORK

### CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

**Table 4.7-2** includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

## 4.7 GEOLOGY AND SOILS

**TABLE 4.7-2**  
**PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Policy SA 1.4:</b> Mitigate potential adverse impacts of geologic and seismic hazards.	Yes	The proposed project would be constructed in accordance with applicable standards and codes to minimize damage in the resulting from a geologic or seismic hazard.
<b>Action SA 1.4.1:</b> In areas of potential geologic hazards require site specific geologic and soils studies as part of approval process for all new development. This analysis must identify on-site geologic hazards, determine risk potential and provide mitigation measures for all pertinent geologic hazards.	Yes	The proposed project includes mitigation that would require preparation of geotechnical studies on the project site as well as along the outfall pipeline route (MM 4.7.1a, MM 4.7.1b, MM 4.7.2 and MM 4.7.3).
<b>Action SA 1.4.3:</b> Require that underground utilities, particularly water and natural gas mains, be designed to withstand seismic forces.	Yes	The proposed outfall pipeline would be designed in accordance with the UBC (MM 4.7.1a, MM 4.7.1b, MM 4.7.2 and MM 4.7.3).

### 4.7.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

For the purposes of this EIR, impacts are considered to be significant if the following could result from implementation of the proposed project:

- 1) Destruction or modification of unique geologic features;
- 2) Exposure of people or property to geologic hazards including;
  - groundshaking and ground rupture
  - liquefaction
  - subsidence
  - soils with adverse engineering properties; or
- 3) Increased soil erosion.

#### METHODOLOGY

Evaluation of potential geologic and soil impacts associated with the proposed project was based on review of the City of Tracy Urban Management Plan (UMP); UMP EIR; literature prepared by the California Division of Mines and Geology (CDMG), information from the U.S. Natural Resources Conservation Service, and mapping published by the U.S. Geologic Survey.

## PROJECT IMPACTS AND MITIGATION MEASURES

**Unique Geologic Features**

The project site is relatively flat and has been developed with wastewater facility structures and paving. The outfall pipeline would be located within existing roadway right-of-ways and through agricultural land. No unique geologic features are present on the project site or along the outfall pipeline route. Therefore, the project would have a **less than significant impact** to unique geologic features.

**Seismic Hazards**

**Impact 4.7.1** Development of the project may expose WWTP plant facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant impact**.

The maximum magnitude seismic event that is expected for the project area is around magnitude 7 on the Richter scale. Although the Tracy area has not been subject to large, damaging earthquakes during historic time, an earthquake on any of the region's active or potentially active faults could produce moderate to strong groundshaking in the project area. The intensity of groundshaking at any specific site depends on the characteristics of the earthquake, the distance from the earthquake fault, local geology, and soil conditions. Based on known potentially active faults in the vicinity of the project and active faults in the region, the project area has the potential to experience groundshaking. The degree of damage inflicted would depend on the magnitude and location of the seismic event. No surface rupture hazards or active faults are located through the project site or in the vicinity. However, it is possible that earthquakes on unmapped faults or very large magnitude events could result in strong groundshaking in the area that could damage the outfall pipeline. As a result, impacts resulting from groundshaking are considered significant.

*Mitigation Measures*

**MM 4.7.1a** The City shall design all facilities in accordance with seismic design criteria of the most recent edition of the Uniform Building Code (UBC) for Seismic Zone 3. This shall be reflected in project improvement plans.

*Timing/Implementation:* Prior to the approval of final improvement plans.

*Enforcement/Monitoring:* City of Tracy Department of Public Works.

**MM 4.7.1b** The City shall retain a qualified geologist to prepare a geotechnical and soil engineering study for the project site identifying potential seismic hazards. The study shall include design standards for infrastructure facilities to minimize damage associated with liquefaction. The recommendations of the study shall be incorporated into plans.

## 4.7 GEOLOGY AND SOILS

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*Timing/Implementation:* Prior to the approval of final engineering drawings.

*Enforcement/Monitoring:* City of Tracy Department of Public Works.

### Liquefaction

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a **potentially significant** impact.

Liquefaction describes a phenomenon in which a saturated, cohesionless soil loses strength during an earthquake as a result of induced shearing strains. Lateral and vertical movement of the soil mass combined with loss of bearing usually results. Research has shown that liquefaction potential of soil deposits induced by earthquake activity depends on soil types, void ratio, groundwater conditions, duration of shaking, and confining pressure over the potentially liquefiable soil mass. Fine, well-sorted, loose sand, shallow groundwater conditions, higher intensity earthquakes, and particularly long duration of groundshaking are the requisite conditions for liquefaction.

The potential for the occurrence of an earthquake with the intensity and duration characteristics capable of promoting liquefaction “opportunity” is considered likely for the life of the proposed project. In addition, the “susceptibility” factors, such as depth to groundwater and soil type, lend support to the prospect for ground failure by liquefaction. Accordingly, this impact is considered **potentially significant**.

### *Mitigation Measures*

**MM 4.7.2** In accordance with the California Building Code (Title 24, Part 2) Section 1804A.3 and A.5, liquefaction and seismic settlement potential shall be addressed in the design level geotechnical engineering investigations. Facilities shall be designed to withstand expected forces associated with seismic events. These design features shall be incorporated in project improvement plans.

*Timing/Implementation:* Prior to the issuance of building permits.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services Department.

Implementation of the above mitigation measure would mitigate seismic-related ground failures, including hazards related to liquefaction to a **less than significant** level.

### Landslides

Due to the relatively flat relief of the site, the potential for hazards due to landslides is considered to be **less than significant**.

### Expansive Soils

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant** impact.

Based on UMP EIR Figure 46 (City of Tracy, 1993), the project site is located in an area known to have soils with moderate to high expansion potential. Soils with high clay content shrink as moisture evaporates and swell as moisture penetrates the subgrade. Moderately expansive clays are typical of the Tracy region.

#### *Mitigation Measure*

**MM 4.7.3** Design level geotechnical investigations shall be performed for each planned facility or structure. Site soils shall be sampled and laboratory tested during design level to determine the expansion potential, as part of the geotechnical and soil engineering study. The recommendations of the study shall be incorporated into plans. Mitigation may include, but is not limited to the following measures:

- Expansive soils can be excavated and replaced with non-expansive materials. The required depth of excavation shall be specified by a registered civil engineer based on actual soil conditions;
- Expansive soils may be treated in place by mixing them with lime. Lime-treatment alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive; and/or,
- Implement alternative engineering practices considered appropriate by the City of Tracy Development and Engineering Services Department to mitigate expansive soil conditions.

*Timing/Implementation:* Prior to grading activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services Department.

Implementation of the above mitigation measure will reduce expansive soil hazards impacts to **less than significant**.

### Erosion

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant** impact.

The project site and outfall pipeline route contain soils that are susceptible to at least moderate erosion. Micro-tunneling technology would be used to avoid sensitive biological resources. However, trenching would still be required to install segments of the pipeline. The pipeline would be constructed near Old River while the diffuser itself would be placed in the river bottom. Because construction would occur in proximity to Old River, soil disturbances

## 4.7 GEOLOGY AND SOILS

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associated with grading and trenching are considered to pose a **significant** impact to water quality.

### *Mitigation Measure*

**MM 4.7.4** Prior to grading activities, an erosion control plan which indicates proper control of siltation, sedimentation and other pollutants through the use of Best Management Practices (BMPs) shall be prepared and submitted to the City of Tracy Development and Engineering Services Department. The plan shall be incorporated into the project improvement plans and construction contracts. BMPs may include, but are not limited to, the following:

- a) Grading operations shall be targeted for the dry months of the year. If project construction occurs during rainy weather, sediment traps, barriers, covers or other methods approved by the City shall be used to reduce erosion.
- b) Excavated materials shall not be deposited or stored where the material could be washed away by stormwater runoff.

*Timing/Implementation:* Prior to grading activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services Department.

Implementation of the above mitigation measure would mitigate erosion-related impacts to a **less than significant** level.

### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

#### **Cumulative Setting**

Due to the localized nature of geotechnical and seismic information, potential impacts are site-specific and are generally not affected by, or do not affect, other developments in the region.

#### **Cumulative Impacts and Mitigation Measures**

Impacts associated with geology, soils and seismicity as a result of the proposed project would be limited to the WWTP site and outfall pipeline route. As a result, the impacts would be site-specific and no significant cumulative impacts would occur. Impacts would be mitigated through project specific mitigation measures. Therefore, cumulative impacts relative to geology or geologic hazards are considered **less than significant**.

**REFERENCES**

- City of Tracy. 1988. *City of Tracy Design Standards*. Tracy, California. July 19, 1988.
- City of Tracy. 1993a. *City of Tracy Urban Management Plan/General Plan*. Tracy, California. July 19, 1993.
- City of Tracy. 1993b. *Final EIR for the City of Tracy Urban Management Plan/General Plan*. Tracy, California. July 19, 1993.
- USDA, 1992. U.S. Department of Agriculture. *Soil Survey of San Joaquin County, California*. 1992.

**SECTION 4.8**  
**BIOLOGICAL RESOURCES**

## 4.8 BIOLOGICAL RESOURCES

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This section evaluates the biological resource impacts that may be associated with the development of the proposed City of Tracy Wastewater Treatment Plant (WWTP) Expansion and describes the biological resources that occur, or potentially occur, within the expansion area. The biological analysis is based on data collected during field surveys and a review of existing documentation of biological resources in the project area.

### 4.8.1 EXISTING SETTING

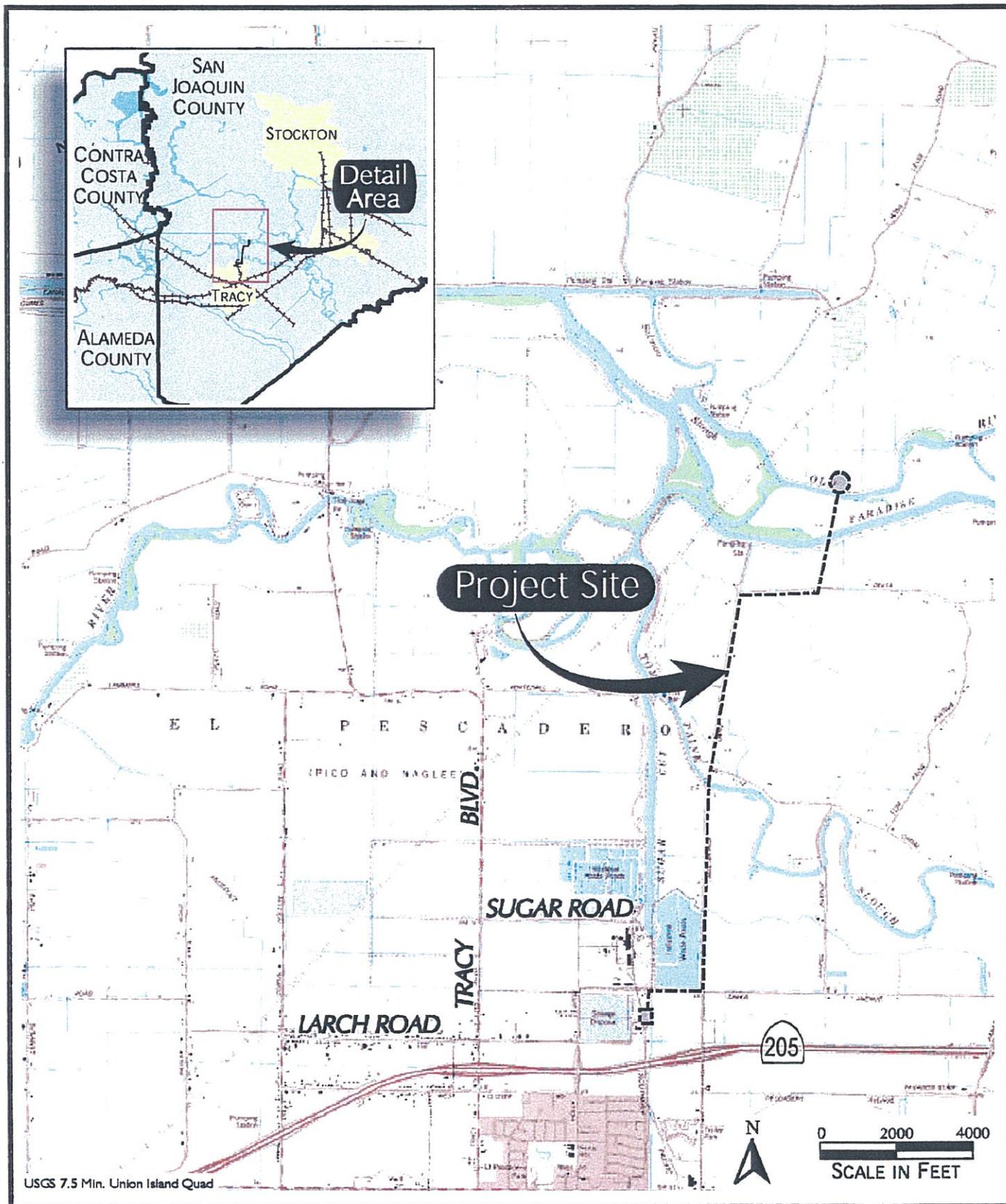
The following discussion of biological resources is based on implementation of the proposed Tracy WWTP expansion project. The Tracy WWTP expansion study area is located within the City of Tracy, San Joaquin County (**Figure 4.8-1**). For the purposes of this report, the impact analysis, the proposed project includes two components: 1) the proposed expansion of the existing wastewater treatment facility and 2) the associated effluent pipeline alignment that extends northeast to a proposed outfall at Old River. The wastewater treatment facility expansion would be located south of Arbor Avenue, north of Interstate 205 and directly east of the existing wastewater treatment facility. The associated effluent pipeline alignment is proposed to extend from the treatment facility predominantly north along MacArthur Drive for approximately 12,000 feet, or approximately 2.3 miles. The pipeline alignment crosses Tom Paine Slough, and is aligned east to Delta Avenue for approximately 2,000 feet. The pipeline then turns north crossing Paradise Cut and terminates at an outfall in Old River. Elevations within the study area range from 5 feet to 15 feet above mean sea level (MSL). Surrounding land uses include open cultivated cropland and light industrial, commercial, and residential to the south. A full project description is provided in Section 3.0, Project Description.

Herein, text referring to the “project area” refers to improvements within and immediately adjacent to areas associated with the treatment plant expansion and the placement of the new pipeline and outfall. This area includes the facility expansion area, an approximately 50-foot construction corridor, and staging areas. All areas within 500 feet of the project area were also examined to ensure that any habitats or species that may be affected by the project were identified. This larger area is referred to herein as the “study area.”

#### PLANT AND WILDLIFE COMMUNITIES

Plant communities present within the study area are discussed below. General vegetation conditions occurring within the study area, common plant and wildlife species observed or expected to occur in these areas, and special-status species and sensitive habitats expected or known to occur in these areas are also addressed below.

Vegetation within the study area includes predominantly cultivated agricultural fields and associated ruderal vegetation, with open water and riparian habitats occurring along the Tracy WWTP effluent pipeline alignment and some planted (landscaped) eucalyptus trees occurring at the expansion site.



### **Agricultural (Cultivated) Land**

Regularly maintained agricultural fields occur throughout the majority of the study area. Dominant vegetation includes cultivated row crops such as safflower and other crops commonly planted in this region. Field margins support ruderal invasive species such as wild oats (*Avena* sp.), yellow-star thistle (*Centaurea solstitialis*), ripgut brome (*Bromus diandrus*), wild radish (*Raphanus sativus*), and mustards (*Brassica* spp.).

Agricultural fields generally provide low value breeding habitat for wildlife due to the high level and frequency of disturbance, however these cultivated areas are a source of foraging habitat for many species. Nesting and denning opportunities are restricted to the margins of worked fields, or in adjacent unfarmed areas. California ground squirrels (*Spermophilus beecheyi*) were frequently observed in the less common fallow agricultural fields. Other wildlife species observed foraging in this habitat include American crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), red-tailed hawk (*Buteo jamaicensis*), savannah sparrow (*Passerculus sandwichensis*), and turkey vulture (*Cathartes aura*). Additional species expected to occur within this habitat include harvest mouse (*Reithrodontomys megalotis*), black-tailed jackrabbit (*Lepus californicus*), red-winged blackbird (*Agelaius phoeniceus*), and western meadowlark (*Sturnella neglecta*).

### **Ruderal Field**

Ruderal field habitats dominated by invasive grasses and herbs are found along several portions of the effluent pipeline alignment. Species including yellow star thistle, wild radish, and wild oats occur in this habitat.

Ruderal field habitats provide shelter, foraging, and breeding opportunities for numerous wildlife species. Species expected to utilize these habitats include turkey vulture, harvest mouse, California ground squirrel, black-tailed jackrabbit, American crow, red-tailed hawk, and numerous other resident and migratory wildlife species.

### **Open Water**

The effluent pipeline crosses open water habitat in three locations: Tom Paine Slough, Paradise Cut, and Old River. Within the actual alignment of the pipeline, vegetation is limited to sparse stands of emergent wetland vegetation that include cattail (*Typha latifolia*), California bulrush (*Scirpus californicus*) reed grass (*Calamagrostis* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), and dallis grass (*Paspalum dilatatum*) that occur along the banks of these features in the study area.

An irrigation ditch flows adjacent to the existing pipeline, along MacArthur Drive. This ditch is relatively devoid of vegetation. Ruderal species such as yellow star thistle, wild radish, and wild oats are found alongside the ditch.

Open water habitats provide foraging opportunities for various wildlife species including great egret (*Casmerodius albus*), great blue heron (*Ardea herodias*), raccoon (*Procyon lotor*), western

## 4.8 BIOLOGICAL RESOURCES

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pond turtle (*Clemmys marmorata*), chorus frog (*Pseudacris regilla*) and bull frog (*Rana catesbeiana*). Red-winged blackbird, marsh wren (*Cistothorus palustris*), and other bird species that forage and nest in marsh habitats could occasionally use these areas for breeding or foraging habitat.

### Riparian Woodland

Riparian woodland habitat occurs along Paradise Cut and Old River, west of the study area boundary. The woodland canopy, comprised of scattered valley oaks (*Quercus lobata*), willows (*Salix* spp.), and cottonwoods (*Populus fremontii*) forms a moderately dense overstory to other smaller riparian plant species that include coyote brush (*Baccharis pilularis*), Himalayan blackberry (*Rubus discolor*), and mugwort (*Artemisia douglasiana*).

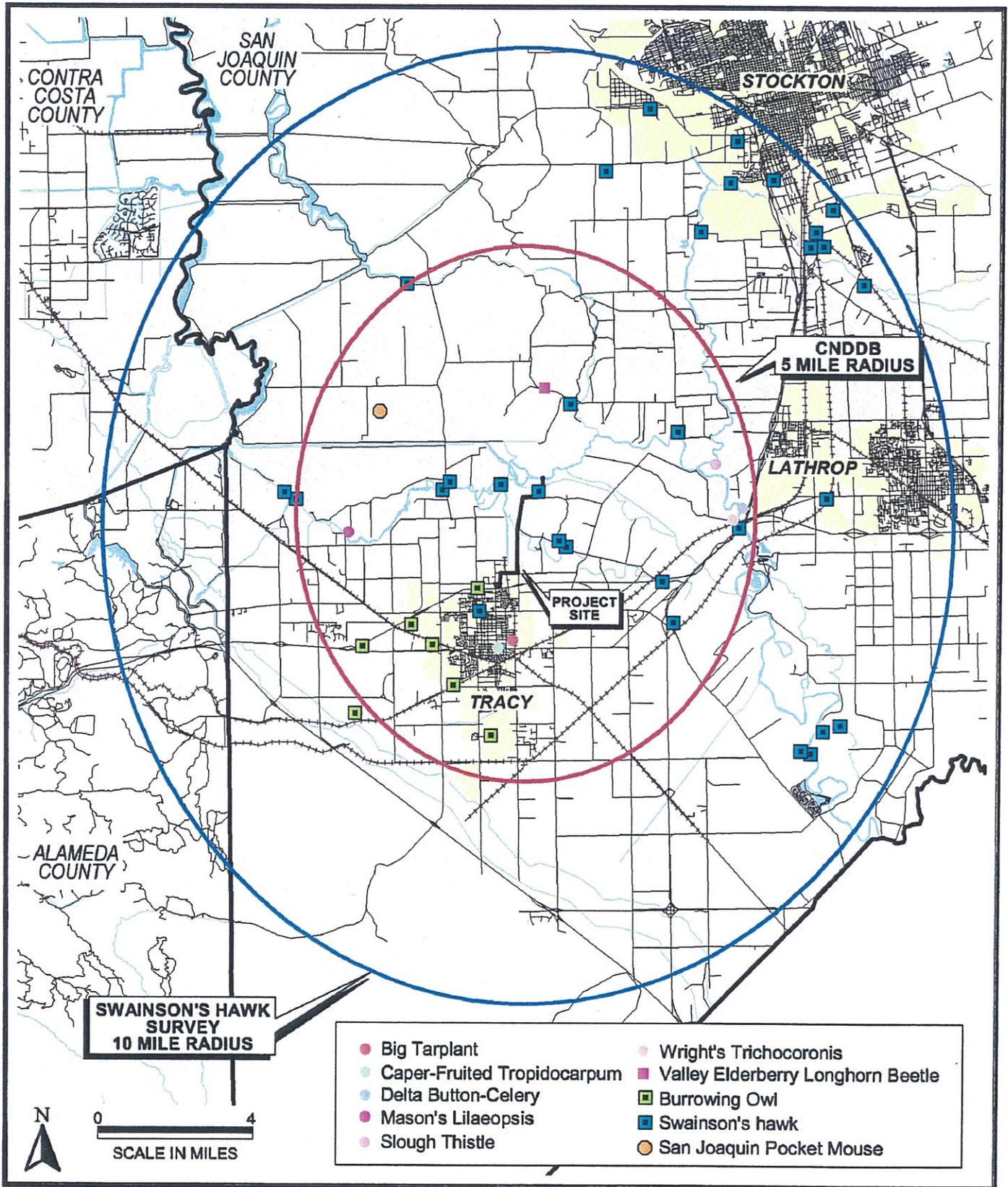
A wide variety of resident and migratory wildlife species utilize riparian woodland habitats for shelter, breeding, and foraging opportunities. Wildlife species commonly associated with riparian woodlands in the region include song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), yellow-rumped warbler (*Dendroica coronata*), belted kingfisher (*Ceryle alcyon*), spotted towhee (*Pipilo erythrophthalmus*), Anna's hummingbird (*Calypte anna*), and northern flicker (*Colaptes auratus*). Mammals including striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*) and amphibians such as bullfrog (*Rana catesbeiana*) also likely occur here.

### LISTED AND SPECIAL-STATUS SPECIES

The following discussion describes the plant and animal species that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Listed and special-status species are defined as:

- listed or proposed for listing under the state or federal Endangered Species Acts;
- protected under other regulations (e.g. Migratory Bird Treaty Act);
- California Department of Fish and Game (CDFG) Species of Special Concern;
- listed as species of concern by California Native Plant Society (CNPS), or;
- otherwise, receive consideration during environmental review (CEQA).

Listed and special-status species that are known to occur, or may potentially occur, within the project area are discussed below, listed in **Table 4.8-1**, and mapped in **Figure 4.8-2**. These species were considered for this analysis based on field surveys and review of the California Natural Diversity Database (CNDDB) database, CNPS literature, and the City of Tracy UMP/General Plan (City of Tracy, 1993a). A full listing of plant and animal species observed in the project area is provided in **Appendix H**.



## 4.8 BIOLOGICAL RESOURCES

**Table 4.8-1** identifies the species listed in the United States Fish and Wildlife Service (USFWS) species list for the Union Island 7.5-minute USGS quadrangle, all of which have once occurred in the San Joaquin County vicinity. Species listed in the CNDDDB that have been observed within a minimum five-mile radius of the study area are also listed in **Table 4.8-1**. Species listed as having no potential for occurrence are species either a) not expected to occur within the study area based on the known range of the species or b) not expected to occur due to lack of suitable habitat within the study area.

**TABLE 4.8-1  
LISTED AND SPECIAL STATUS SPECIES  
POTENTIALLY OCCURRING WITHIN THE STUDY AREA OR IN THE STUDY AREA VICINITY**

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
<b>Plants</b>			
Big tarplant	<i>Blepharizonia plumosa</i> ssp. <i>plumosa</i>	--; --; 1B	No
Caper-fruited tropidocarpum	<i>Tropidocarpum capparideum</i>	SC; --; 1A	No
Slough thistle	<i>Cirsium crassicaule</i>	--; --; 1B	Yes
Delta button celery	<i>Eryngium racemosum</i>	--; CE; 1B	Yes
Mason's lilaepsis	<i>Lilaeopsis masonii</i>	SC; CR; 1B	Yes
<b>Invertebrates</b>			
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT; --; --	Yes
Sacramento anthicid beetle	<i>Anthicus sacramento</i>	SC; --	No
Molestan blister beetle	<i>Lytta molesta</i>	SC; --	No
Vernal Pool Fairy Shrimp	<i>Branchinecta lynchi</i>	FT; --	No
vernal pool Tadpole Shrimp	<i>Lepidurus packardi</i>	FE; --	No
<b>Amphibians</b>			
California Tiger Salamander	<i>Ambystoma californiense</i>	C; CSC (Protected)	No
California red-legged frog	<i>Rana aurora draytonii</i>	FT; CSC (Protected)	No
<b>Reptiles</b>			
California horned lizard	<i>Phrynosoma coronatum frontale</i>	SC; CSC (Protected)	No
Giant garter snake	<i>Thamnophis gigas</i>	FT, CSC (Protected)	Yes
Northwestern pond turtle	<i>Clemmys marmorata marmorata</i>	SC; CSC (Protected)	Yes
Southwestern pond turtle	<i>Clemmys marmorata pallida</i>	SC; CSC (Protected)	Yes
San Joaquin coachwhip (whipsnake)	<i>Masticophis flagellum ruddocki</i>	SC; CSC (Protected)	No
Silvery legless lizard	<i>Anniella pulchra pulchra</i>	SC; CSC	No
Central Valley spring-run chinook salmon	<i>Oncorhynchus tshawytscha</i>	FT; CT	Yes

**TABLE 4.8-1**  
**LISTED AND SPECIAL STATUS SPECIES**  
**POTENTIALLY OCCURRING WITHIN THE STUDY AREA OR IN THE STUDY AREA VICINITY**  
**(CONTINUED)**

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
<b>Fish (continued)</b>			
Central Valley fall/late fall-run chinook salmon	<i>Oncorhynchus tshawytscha</i>	C; CSC	Yes
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	FT, --	Yes
Delta smelt (critical habitat)	<i>Hypomesus transpacificus</i>	FT; CT	Yes
Green sturgeon	<i>Acipenser medirostris</i>	SC; CSC	No
River lamprey	<i>Lampetra ayresi</i>	SC, CSC	No
Longfin smelt	<i>Spirinchus thaleichthys</i>	SC; CSC	No
Pacific Lamprey	<i>Lampetra tridentata</i>	SC, --	No
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	FT; CSC	Yes
Winter-run chinook salmon	<i>Oncorhynchus tshawytscha</i>	FE; CE	Yes
<b>Birds</b>			
American peregrine falcon	<i>Falco peregrinus anatum</i>	D; CE (nesting)	No
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	FT; -- (wintering)	No
Bald eagle	<i>Haliaeetus leucocephalus</i>	FT; CE (nesting and wintering)	No
Bell's sage sparrow	<i>Amphispiza belli belli</i>	SC; CSC (nesting)	No
Ferruginous hawk	<i>Buteo regalis</i>	SC; CSC (wintering)	Yes
Mountain plover	<i>Charadrius montanus</i>	FPT; CSC (wintering)	No
Swainson's Hawk	<i>Buteo swainsoni</i>	--; CT (nesting)	Yes
Tricolored blackbird	<i>Agelaius tricolor</i>	SC; CSC (nesting colony)	Yes
Western burrowing owl	<i>Athene cunicularia hypugea</i>	SC; CSC (burrow sites)	Yes
<b>Mammals</b>			
Fringed myotis bat	<i>Myotis thysanodes</i>	SC; --	Yes
Greater western mastiff-bat	<i>Eumops perotis californicus</i>	SC; CSC	Yes
Long-eared myotis bat	<i>Myotis evotis</i>	SC; --	Yes
Long-legged myotis bat	<i>Myotis volans</i>	SC; --	Yes
Pacific western big-eared bat	<i>Corynorhinus (Plecotus) townsendii townsendii</i>	SC; CSC (Full species)	Yes
Riparian Brush Rabbit	<i>Sylvilagus bachmani riparius</i>	FE; CSC	No
Riparian (San Joaquin Valley) Woodrat	<i>Neotoma fuscipes riparia</i>	FE; CE	No

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**TABLE 4.8-1  
LISTED AND SPECIAL STATUS SPECIES  
POTENTIALLY OCCURRING WITHIN THE STUDY AREA OR IN THE STUDY AREA VICINITY  
(CONTINUED)**

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
<b>Mammals (continued)</b>			
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE; CT	Further discussed below
San Joaquin pocket mouse	<i>Perognathus inornatus</i>	SC; --	No
Small-footed myotis bat	<i>Myotis ciliolabrum</i>	SC; --	Yes
Yuma myotis bat	<i>Myotis yumanensis</i>	SC; CSC	Yes

FE = federally endangered  
 FT = federally threatened  
 CE = California endangered  
 CT = California threatened  
 C = candidate species  
 FPT = federally proposed threatened  
 CNPS Categories: 1A = plants presumed extinct in California  
 1B = Plants rare, threatened, or endangered in California and elsewhere  
 2=Rare/Endangered in California; more common elsewhere  
 CR = California rare  
 CSC = California Species of Special Concern  
 MBTA = federal Migratory Bird Treaty Act  
 SC = federal species of concern  
 D = proposed for delisting  
 Source: *Foothill Associates, 2001.*

Listed and special-status species that are known to occur, or may potentially occur within the plan area are discussed below and listed in **Table 4.8-2**. The species discussed below were considered for this analysis based on field reconnaissance and review of the CNDDDB database, USFWS species lists for the Oakley vicinity, and CNPS literature.

**TABLE 4.8-2  
LISTED AND SPECIAL-STATUS SPECIES KNOWN TO OCCUR,  
OR POTENTIALLY OCCUR WITHIN THE PLAN AREA**

Species	Federal	State	CNPS	Habitat	Potential for Occurrence
<b>Plants</b>					
Slough thistle	--	--	1B	Chaparral, riparian scrub, marshes/sloughs	<b>Medium;</b> potential habitat exists in the open water habitat and nearby riparian habitat within the study area.
Delta button-celery	--	E	1B	Riparian scrub habitat within clay depressions	<b>Medium;</b> potential habitat exists in the riparian habitat near the study area.
Mason's lilaeopsis	SC	R	1B	Riparian scrub and marshes	<b>Medium;</b> potential habitat exists in the riparian habitat near the study area.

4.8 BIOLOGICAL RESOURCES

**TABLE 4.8-2  
LISTED AND SPECIAL-STATUS SPECIES KNOWN TO OCCUR,  
OR POTENTIALLY OCCUR WITHIN THE PLAN AREA  
(CONTINUED)**

Species	Federal	State	CNPS	Habitat	Potential for Occurrence
<b>Invertebrates</b>					
Valley elderberry longhorn beetle <i>Desmoceres californicus dimorphus</i>	FT	--	--	Elderberry shrubs	<b>Medium;</b> potential habitat for this species is present in the riparian woodland near the study area.
<b>Reptiles</b>					
Giant garter snake <i>Thamnophis gigas</i>	FT	CT	--	Densely vegetated streams, rivers, and canals	<b>Low;</b> although irrigation canals in the study area could provide marginal habitat for this species, the project area is outside of the current known range of the species.
Northwestern/Southwestern Pond Turtle	SC	CSC	--	Occurs in pond habitats and along slow reaches of rivers, streams, and canals.	<b>Medium;</b> this species could occur in association with the open water habitats in the study area.
<b>Fish</b>					
Anadromous Fish species: Central Valley spring-run chinook salmon, Central Valley steelhead, Delta smelt, Sacramento splittail, and Winter-run chinook salmon	See Table 4.8-1	See Table 4.8-1	--	Rivers and streams, delta estuaries	<b>Medium;</b> Sacramento splittail and Delta smelt are resident species within the Delta with ranges that vary year to year. Salmon and steelhead both have runs that migrate through the San Joaquin River and Delta systems.
<b>Birds</b>					
Western Burrowing Owl	SC	CSC	--	Open grasslands. Typically nest in abandoned ground squirrel burrows.	<b>Medium;</b> this species could nest and forage in agricultural and ruderal fields within the study area. Ground squirrels were observed along irrigation canals near the project area.
Swainson's Hawk	--	T	--	Forage within open grasslands and agricultural fields. Typically nest in large trees in riparian corridors.	<b>Medium;</b> potential foraging habitat occurs within the study area. Potential nesting habitat occurs in nearby riparian habitats.

4.8 BIOLOGICAL RESOURCES

**TABLE 4.8-2  
LISTED AND SPECIAL-STATUS SPECIES KNOWN TO OCCUR,  
OR POTENTIALLY OCCUR WITHIN THE PLAN AREA  
(CONTINUED)**

Species	Federal	State	CNPS	Habitat	Potential for Occurrence
<b>Birds (continued)</b>					
Tricolored blackbird	SC	CSC	--	Nests in marshes and blackberry thickets.	<b>Low;</b> there are no large stands of marsh habitat within the study area that would provide suitable nesting habitat for this species.
Egrets and herons	MBTA	§3503.5 DFG Code * for rookeries	--	Marshlands and ponds	<b>Medium;</b> The open water habitat onsite provides suitable foraging habitat for these species. No rookeries were observed during field reconnaissance.
Other Raptors (Birds of prey: hawks, owls, etc.) and other migratory birds	MBTA	§3503.5 DFG Code	--	Raptors: Large trees and riparian woodlands for nesting Resident Migratory Birds: non-native grasslands, riparian and oak woodlands, landscaped trees.	<b>Medium;</b> The agricultural and ruderal fields and riparian habitats within the study area provide suitable nesting habitat for other raptors and migratory birds.
<b>Mammals</b>					
San Joaquin kit fox	FE	T	--	Central Valley grasslands	<b>Low;</b> study area is outside of current denning range for this species; low potential for this species to forage onsite.
Bats (including fringed myotis, greater western mastiff bat, long-eared myotis, long-legged myotis, Pacific western big-eared bat, small-footed myotis, Yuma myotis)	See Table 4.8-1	See Table 4.8-1	--	Roost in numerous habitats including rock crevices, under tree bark, buildings, tunnels, mines, and caves	<b>Medium;</b> could roost in the riparian woodland onsite.

Source: Foothill Associates, 2001.

E = Endangered T = Threatened

\* = CDFG "Special Animal"

CSC = California Species of Special Concern

SC = federal species of concern

MBTA = federal Migratory Bird Treaty Act

CNPS Categories: 1B = Plants rare, threatened, or endangered in California and elsewhere  
2=Rare/Endangered in California; more common elsewhere

<sup>1</sup> CNPS is a private non-profit organization that works closely with CDFG throughout the state. CNPS-developed information serves as an important source of data for consideration by CDFG and USFWS in recommendations for listing state or federal threatened and endangered plant species.

LISTED AND SPECIAL-STATUS PLANTS

**Slough Thistle**

Slough thistle is a CNPS 1B listed species that occurs primarily in marsh, swamp, and riparian scrub habitats along sloughs and riverbanks. This species is endemic to California in the San Joaquin Valley (CNDDDB, 2001). The banks of Paradise Cut and Tom Paine Slough provide potential habitat for this species and this species could occur within the study area.

**Delta Button Celery**

Delta button celery is a CNPS 1B and state-listed endangered species that occurs primarily in riparian scrub habitat with clay depressions. Riparian habitat associated with Paradise Cut is considered potential habitat for this species.

**Mason's Lilaeopsis**

Mason's lilaeopsis is a federal species of concern, state-listed rare, and a CNPS 1B listed species. This species occupies freshwater and brackish marshes and riparian scrub habitat (CNDDDB, 2001). The riparian woodland and open water habitats provide suitable habitat for this species and, consequently, this species could occupy these habitats in or near the study area.

LISTED AND SPECIAL-STATUS WILDLIFE

Listed and special-status wildlife species determined to have the potential to occur within the study area include giant garter snake, northwestern/southwestern pond turtle, anadromous fish, western burrowing owl, Swainson's hawk, riparian woodrat, and several raptors, and bats. The potential for San Joaquin kit fox to occur onsite is discussed below. Various species of egrets and herons could periodically forage within the study area; however, suitable breeding habitat for these species is not present in the study area.

**Valley Elderberry Longhorn Beetle**

Valley elderberry longhorn beetle is a federally listed threatened species. This species is commonly found near riparian habitats within the Central Valley; however, its range spans the Sierra foothills, and may reach elevations of 3,000 feet. This species is dependent on elderberry shrubs for the larval stage of its life cycle. For this reason, elderberry shrubs are considered habitat for this species (USFWS, 1999). There are elderberry plants within the riparian corridor along Paradise Cut.

**Northwestern/Southwestern Pond Turtle**

Northwestern pond turtles are a federal species of concern and a California species of special concern. Pond turtles occupy perennial water features (e.g. marshes, ponds, and slow reaches of streams and rivers) and require adjacent dry upland habitats for basking sites, breeding, and

## 4.8 BIOLOGICAL RESOURCES

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overwintering (Zeiner *et. al.*, 1988). This species is active year-round, although the level of activity is generally reduced in colder months (October-February). Adults have been found at distance of over 1 km from water and overwintering may extend up to 500 m from watercourses (Holland 1994). Eggs are laid in open areas, usually with compact soils, sparse grasses or other vegetation, and a generally south-facing exposure. Egg-laying occurs from late April-July. Hatchlings may overwinter in the nest or nearby vegetation in some areas. The open water habitats within the study area support suitable habitat for this species and, consequently, this species may occur in the open water habitats in the study area and may utilize upland habitats adjacent to open water for overwintering and nesting. However, potential habitat for this species is marginal adjacent to Tom Paine Slough and Old River due to farming activities and presence of rip-rip and vegetation control. Habitat in the study area for this species occurs primarily adjacent to Paradise Cut, where remaining riparian vegetation provides cover.

### **Resident and Anadromous Fish**

Several species of resident and anadromous fish are of concern in the San Joaquin River and Delta system of which Old River is a part. These species include Delta smelt, Sacramento splittail, chinook salmon (winter, spring, fall and late-fall runs), and steelhead (Central Valley ESU). These species are discussed below.

#### **Delta Smelt**

The delta smelt is a small, slender bodied fish that is known only from the Sacramento-San Joaquin Estuary in California. The range of Delta smelt fluctuates year to year, but have been found as far north as the mouth of the American River in the Sacramento River system and as far south as Mossdale within the San Joaquin River system. Delta smelt were listed as threatened both state and federally in 1993. Delta smelt are generally found in brackish water, but migrate in late winter/early spring to freshwater to spawn. Larvae are washed downstream to the "entrapment zone" where fresh and salt water mix. Delta smelt generally complete their life cycle within one year, though some survive into a second year (CDFG, 1995). Delta smelt has been collected in the following areas within San Joaquin County: San Joaquin River, Old River, Middle River, North Canal; Rock Slough; Holland Cut; Turner Cut, Grant Line Canal; Mokelumne River; South Fork Mokelumne River; Little Potato Slough; Disappointment Slough; and in the vicinity of Bouldin and Woodward islands (San Joaquin County Multi-Species Habitat Conservation and Open Space Plan [SJMSCP], 2000). Larval, juvenile, and adult delta smelt are known to inhabit rivers in San Joaquin County such as Old River and Middle River (SJMSCP, 2000) where they are vulnerable to entrainment and loss resulting from water project export operations. Tens of thousands of delta smelt (primarily larvae and juveniles) are entrained and lost each year at the state and federal export facilities (SWP and CVP).

#### **Sacramento Splittail**

Sacramento splittail are federally-listed threatened and are a CDFG species of concern. Splittail are native to California's Central Valley. Historically, splittail were found as far north as Redding on the Sacramento River, as far south as the present-day site of Friant Dam on the San

Joaquin River, and up the tributaries of the Sacramento River as far as the current Oroville Dam site on the Feather River and Folsom Dam site on the American River (64 FR 5963-5981). However, dams and diversions have increasingly prevented splittail from upstream access to the large rivers and the species now primarily inhabits the delta and lower reaches of the Sacramento and San Joaquin rivers. During wet years, they migrate up the Sacramento River as far as the Red Bluff diversion dam in Tehama County, and into the lowermost reaches of the Feather and American rivers (64 FR 5963-5981). Splittail have also been collected in the San Joaquin River and local tributaries. Splittail have been collected in the following areas within San Joaquin County: San Joaquin River, Old River, North Canal; Rock Slough; Holland Cut; Grant Line Canal; Mokelumne River; South Fork Mokelumne River; Beaver Slough, Potato Slough; Little Potato Slough; Sycamore Slough; Disappointment Slough; Bishop Cut; and, in the vicinity of Bouldin and Woodward islands (SJMSCP, 2000). Old River, within San Joaquin County, is one

of the rivers which transports the splittail, juveniles, and adults to salvage facilities at the state and federal export pumps (SJMSCP, 2000).

Splittail are relatively long-lived, frequently reaching 5 to 7 years of age. Young-of-the-year splittail abundance fluctuates annually depending on spawning success, which is highly correlated with freshwater outflow and the availability of shallow-water habitat with submerged vegetation. The onset of spawning is associated with rising water levels, increasing water temperatures, and increasing day length. Peak spawning occurs from the months of March through May, although records of spawning exist for late January to early July (64 FR 5963-5981). Spawning occurs over flooded vegetation in tidal freshwater and euryhaline habitats of estuarine marshes and sloughs and slow-moving reaches of large rivers. Larvae remain in shallow, weedy areas close to spawning sites for 10 to 14 days and move into deeper water as they mature and swimming ability increases

### **Chinook Salmon**

Chinook salmon is the largest of the Pacific salmon and has a species distribution historically ranging from the Ventura River in California to Point Hope, Alaska in North America, and in northeastern Asia from Hokkaido, Japan to the Anadyr River in Russia. Several "runs" of chinook are differentiated by the maturity of fish entering fresh water, time of spawning migrations, spawning areas, incubation times, and migration timing of juveniles. Differences in life histories effectively isolate the various runs (Moyle *et al*, 1995).

Freshwater entry and spawning timing are generally thought to be related to local temperature and water flow regimes (Miller and Brannon 1982). Temperature has a direct effect on the development rate of salmonids (Alderdice and Velsen 1978). Runs are designated on the basis of adult migration timing; however, distinct runs also differ in the degree of maturation at the time of river entry, thermal regime and flow characteristics of their spawning site, and actual time of spawning. Spring-run chinook salmon tend to enter freshwater as immature or "bright" fish, migrate far upriver, and finally spawn in the late summer and early autumn. Late, fall-run chinook salmon enter freshwater at an advanced stage of maturity, move rapidly to their spawning areas on the mainstem or lower tributaries of the rivers, and spawn within a few days

## 4.8 BIOLOGICAL RESOURCES

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or weeks of freshwater entry (Fulton 1968, Healey 1991). Fall-run fish spawn in large and medium-sized tributaries, and do not show the extensive delay in maturation exhibited by spring-run chinook salmon (Fulton 1968). Winter-run chinook salmon (which presently exist only in the Sacramento River) begin their freshwater migration at an immature stage and travel to the upper portions of the watershed to spawn in the spring.

Early researchers recorded the existence of different temporal "runs" or modes in the migration of chinook salmon from the ocean to freshwater. Two major influxes of chinook salmon were observed returning to the Sacramento-San Joaquin River system, although "...there is no definite distinction between spring and fall runs; there is no time during the summer when there are no salmon running" (Myers et al, 1998). It has been reported that spring-run fish tended to migrate to the upriver portions of the Sacramento River and spawn earlier than the fall-run salmon, which spawned in the lower regions of tributaries and in mainstem river areas.

### **Central Valley Steelhead**

Central Valley steelhead are listed as federally threatened. Steelhead rely on streams, rivers, estuaries and marine habitat during their lifecycle. In freshwater and estuarine habitats, juvenile steelhead feed on small crustaceans, insects and small fishes. Eggs are laid in small and medium gravel and need good water flow (to supply oxygen) to survive. After emerging from the redd (nest) they remain in streams and rivers for 1 to 4 years before migrating through the estuaries to the ocean. Unlike salmon, steelhead migrate individually rather than in schools. Steelhead spend 1 to 5 years at sea before returning to natal streams or rivers. At least two specific stocks of steelhead have developed; those that enter fresh water during fall, winter and early spring -- the winter run -- and those that enter in spring, summer and early fall -- the summer run. Steelhead do not always die after spawning, but would migrate downstream through estuaries to the ocean.

Because young steelhead spend a significant portion of their lives in rivers and streams, they are particularly susceptible to human induced changes to water quality and habitat threats. Poor timber and agricultural management practices can lead to siltation in streams, which may ruin spawning beds or smother the eggs. Additionally, migrating steelhead face the physical obstacles and high water temperatures resulting from a variety of factors including dams, inadequate water flows in rivers and streams due to water diversions for irrigation, and the impoundment of water for power generation.

### **Western Burrowing Owl**

Western burrowing owl, a California Species of Special Concern, inhabits open grasslands of the Central Valley. Typically, this species nests in small colonies in abandoned ground squirrel burrows (Zeiner *et. al.*, 1990). Six occurrences of this species are recorded within five miles of the study area. Although no burrows or evidence (pellets, white wash, feathers etc.) of this species was observed during field reconnaissance, ground squirrel burrows located within the study area are considered suitable habitat for this species and this species may occur onsite.

### **Swainson's Hawk**

Swainson's hawks typically nest in riparian corridors and isolated trees and forage in open grasslands and agricultural fields within close proximity to the nest (Zeiner *et. al.*, 1990). Fourteen Swainson's hawk nests occur within five miles of the project area. The riparian habitat associated with Old River, Paradise Cut, and Tom Paine Slough provides suitable nesting habitat for this species. The foraging distribution for Swainson's hawk is considered to extend to a radius ten miles from its nesting location (CDFG, 1992). Thus, because there are recorded nest locations within ten miles of the project area, and because the project area supports potential foraging habitat for this species, Swainson's hawk may forage within the study area.

### **Egrets and Herons**

The rookeries of these species are protected under the federal Migratory Bird Treaty Act (MBTA). Egrets and herons inhabit marshlands and ponds and often feed in flooded agricultural fields throughout the Central Valley. Suitable nesting habitat exists along Paradise Cut in the riparian woodlands. No rookeries were observed during field reconnaissance.

### **Raptors**

Raptors and other migratory birds are protected under the MBTA and Section 3503.5 of the California Fish and Game Code. Riparian habitats, oak woodlands, annual grasslands, and numerous other habitats provide suitable foraging and nesting habitat for raptors and other migratory birds. The study area supports suitable nesting and foraging habitat for these species and these species may utilize habitats within the study area.

### **Bats**

Special-status bat species, including fringed myotis bat, greater western mastiff-bat, long-eared myotis bat, long-legged myotis bat, Pacific western big-eared bat, small-footed myotis bat, and Yuma myotis bat, have the potential to roost within the riparian woodland habitat onsite.

### **San Joaquin Kit Fox**

San Joaquin kit fox is federally endangered and threatened in California. This species occurs primarily in open grasslands and agricultural fields throughout the Central Valley (Zeiner *et. al.*, 1990). H.T. Harvey and Associates prepared a comprehensive assessment of the potential for San Joaquin kit fox to occur within the proximity of the City of Tracy (H.T. Harvey and Associates, 1997). Their interpretation of extensive survey and sighting evidence is that it is likely that San Joaquin kit fox are present in small numbers in the hills to the west of Tracy, but that they rarely investigate areas east of the Delta Mendota Canal attempting to locate suitable habitat. Therefore, although agricultural fields can provide foraging habitat for kit fox, it is unlikely that kit fox currently uses habitats within the study area.

## 4.8 BIOLOGICAL RESOURCES

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### SENSITIVE HABITATS

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, or local policies. Sensitive habitats onsite are limited to riparian woodland and jurisdictional waters of the United States, which include Old River, Paradise Slough, and Tom Paine Slough.

### Riparian Woodland

Riparian woodlands provide foraging and breeding habitat for numerous species of resident and migratory wildlife and function as movement corridors for migratory species. Riparian woodland occurs along Paradise Cut within the project area (riparian habitat along Old River occurs well outside the project area).

### Jurisdictional Waters of the U.S.

Wetlands and other waters of the U.S. support a wide diversity of plant species and provide habitat to numerous fish and wildlife species. Old River is a navigable water and is regulated under Section 10 of the Rivers and Harbors Act of 1899 and Sections 401 and 404 of the Clean Water Act and other applicable wetland regulations. Paradise Cut and Tom Paine Slough are jurisdictional waters of the U.S. and are regulated under Sections 401 and 404 of the CWA and other applicable wetland regulations.

## 4.8.2 REGULATORY FRAMEWORK

### LISTED SPECIES

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The State of California enacted a similar law, the California Endangered Species Act (CESA), in 1984. The state and federal Endangered Species Acts are intended to operate in conjunction with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) are responsible for implementation of the FESA, while the California Department of Fish and Game (CDFG) implements the CESA. During project review, each agency is given the opportunity to comment on the potential of the project to affect listed plants and animals.

### SPECIAL-STATUS SPECIES

In addition to formal listing under the FESA and the CESA, selected species may receive additional consideration during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern," developed by the CDFG. It tracks species in California whose numbers, reproductive success, or habitat may be threatened.

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Vascular Plants of California*. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review.

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California Fish and Game Code states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.”

### **Waters of the United States**

#### **Section 10 of the Rivers and Harbors Act of 1899**

The U.S. Army Corps of Engineers (Corps) regulates the creation of any obstruction to the navigable capacity of any of the waters of the U.S. under Section 10 of the Rivers and Harbors Act of 1899. The term "navigable waters of the United States" means those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce [33 C.F.R. 321.2].

#### **Section 404 of the Clean Water Act**

The Corps regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA). “Discharges of fill material” is defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines [33 C.F.R. §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of waters is present. Methods for delineating wetlands, tidal and non-tidal waters are described below.

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- Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 C.F.R. §328.3(b)]. Presently, to be a wetland, a site must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the “normal circumstances” for the site.
- The lateral extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) [33 C.F.R. §328.4(c)(1)]. The OHWM is defined by the Corps as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” [33 C.F.R. §328.3(e)].
- The lateral extent of tidal waters extends to the high tide line or, when adjacent non-tidal waters are present, the jurisdiction extends to the limits identified for non-tidal waters and wetlands as detailed above [33 C.F.R. §328.4(b)].

### Section 1600 et seq. of the California Fish and Game Code

The California Department of Fish and Game has jurisdiction under Section 1600 et seq. of the California Fish and Game Code over fish and wildlife resources of the state. Under Section 1603, a private party must notify the California Department of Fish and Game if a proposed project would “substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds...except when the department has been notified pursuant to Section 1601.” If an existing fish or wildlife resource may be substantially adversely affected by the activity, the California Department of Fish and Game may propose reasonable measures that would allow protection of those resources. If these measures are agreeable to the party, they may enter into an agreement with the California Department of Fish and Game identifying the approved activities and associated mitigation measures.

### 4.8.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if they would:

- 1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- 2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- 3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- 4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- 5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- 6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.
- 7) Adversely affect a species listed for protection under the State or Federal Endangered Species Acts or their habitat.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

### PROJECT IMPACTS AND MITIGATION MEASURES

#### **Common Plant Communities**

The proposed project may remove ruderal and grassland vegetation along Arbor Avenue, Delta Avenue, MacArthur Drive, and landscaped vegetation at the existing wastewater treatment plant facility. Project implementation would also temporarily disturb cropland habitat between Delta Avenue and Paradise Cut and between Paradise Cut and Old River. However, other disturbances

## 4.8 BIOLOGICAL RESOURCES

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would be temporary and the amount of ruderal vegetation and cropland affected is relatively small in comparison to the amount of these habitats in the region. For these reasons, and because this habitat is regionally widespread, and the wildlife species utilizing this habitat are widespread, this impact would be considered **less than significant** and no mitigation would be required.

### **Habitat for Common Resident and Migratory Wildlife**

Implementation of the Tracy WWTP expansion would temporarily disturb and remove habitat for common resident and migratory wildlife currently utilizing the project area. Landscaped vegetation on the wastewater treatment plant site would be permanently removed to accommodate the expansion. Roadside and cropland would experience temporary disturbance. Although landscaped vegetation provides some habitat for common wildlife species, primarily birds, this habitat is regionally abundant and widespread. Affects to roadside and cropland would be temporary and short-term. Because the disturbance zone is narrow and temporary and these habitats are abundant, wildlife would be able to move into adjacent habitats during construction. Therefore, this impact would be considered **less than significant** and no mitigation would be required.

### **Special-Status Plants**

Habitat for three special-status plant species occurs within the project area: Slough thistle, Delta button celery, and Mason's lilaopsis. The banks of Paradise Cut and Tom Paine Slough provide potential habitat for Slough thistle and Mason's lilaopsis. Riparian habitat associated with Paradise Cut is considered potential habitat for Delta button celery. However, because the pipeline would be micro-tunneled under Tom Paine Slough and Paradise Cut, no adverse effects are anticipated to marsh or riparian habitats and therefore these species are not expected to be adversely affected by the project. Therefore, this impact would be considered **less than significant** and no mitigation would be required.

### **Special-Status Bats**

Special-status bat species could occur within the study area, particularly in riparian habitats along Paradise Cut. Bats roost in a wide variety of habitats including buildings, mines, under bridges, rock crevices, caves, under tree bark, and in snags. Several species of bats have been identified as species of concern by the California Department of Fish and Game. However, this project is designed to avoid impacts to riparian woodland by micro-tunneling under woodland and aquatic resources. Direct impacts to potential bat roosting habitat are therefore avoided. Therefore, this impact would be considered **less than significant** and no mitigation would be required.

### **Swainson's Hawk Foraging Habitat**

The proposed project may temporarily disturb ruderal and grassland vegetation along sections of Arbor Avenue, Delta Avenue, MacArthur Drive, and would remove irrigated lawn at the existing wastewater treatment plant facility. Project implementation would also temporarily disturb cropland habitat between Delta Avenue and Paradise Cut and between Paradise Cut and Old

River. These habitat types are occasionally used by Swainson's hawk as foraging habitat; however, in this case, the temporary disturbance of ruderal, grassland, and cropland habitat would not be considered significant. The disturbance is primarily focused along linear features and the quality of these areas as potential foraging is very low. These areas would be returned to the previous use following construction and would again be available for use. The small area of landscaped lawn at the existing wastewater treatment facility is highly unlikely to be used as foraging habitat by Swainson's hawk due to the proximity of human activity, low prey species abundance, and proximity of other, higher quality cropland foraging habitat. Therefore, this impact would be considered **less than significant** and no mitigation would be required.

### **Riparian Woodland**

Riparian woodland occurs along Paradise Cut within the project area. However, this project is designed to avoid impacts to riparian woodland by micro-tunneling under woodland and aquatic resources. Direct impacts to riparian woodland is therefore avoided. This impact would be considered **less than significant** and no mitigation would be required.

### **Northwestern/Southwestern Pond Turtle**

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

The proposed project may result in impacts to upland habitat for northwestern pond turtle. The turtle species nests and overwinters in upland habitats such as grassland and riparian woodland adjacent to summer aquatic habitats. Upland nesting areas are likely limited to upland areas adjacent to Paradise Cut. Temporary construction impacts that may affect these species may result due to presence of heavy equipment, removal of riparian vegetation, and earthmoving activities related to microtunneling activities. Because these species are extremely wary of humans, adult pond turtles that may be in aquatic habitats during summer months are likely to move away from the area during project construction activities. However, nests and overwintering adults and juveniles could be affected from April through February. Following construction, upland habitats would be revegetated and this species would be able to return to the area. Therefore, long-term affects to this species due to the proposed project and alternatives are not considered significant.

Because northwestern pond turtle is a species of special concern to California Department of Fish and Game, temporary construction impacts would be considered potentially significant and subject to mitigation.

#### *Mitigation Measures*

**MM 4.8.1a** In order to avoid disturbance of remaining habitat for pond turtle, the location of equipment staging areas for all microtunnelling activities shall be situated within areas that are already paved, tilled, or otherwise disturbed.

## 4.8 BIOLOGICAL RESOURCES

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Timing/Implementation: *Prior to construction activities.*  
Enforcement/Monitoring: *City of Tracy Development and Engineering Services and California Department of Fish and Game*

**MM4.8.1b** A focused survey for northwestern pond turtle shall be conducted by a qualified biologist prior to the onset of construction activities to determine presence or absence of these species. The surveys shall include all staging areas for microtunneling activities and areas along aquatic habitats that will be modified during construction. If construction is planned after April 1<sup>st</sup>, this survey shall include looking for turtle nests within the construction area. If turtles are found within the proposed construction area, the individuals shall be moved out of the construction site under consultation with California Department of Fish and Game. A qualified biological monitor shall be present during construction activities to ensure no turtles are harmed during construction.

Timing/Implementation: *Prior to construction activities.*  
Enforcement/Monitoring: *City of Tracy Development and Engineering Services and California Department of Fish and Game*

**MM4.8.1c** Construction shall be avoided when adults and hatchlings are overwintering (October-February), due to the likelihood of turtle adults and juveniles being present in upland habitats. If upland construction activities are scheduled in winter, a qualified biological monitor shall be present during *construction activities*.

Timing/Implementation: *Prior to construction activities.*  
Enforcement/Monitoring: *City of Tracy Development and Engineering Services and California Department of Fish and Game*

Implementation of the above mitigation measures would reduce impacts to northwestern pond turtle to a **less than significant level**.

### **Nesting Raptors and Migratory Birds**

**Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.

There are trees within the project area in riparian habitats along Paradise Cut and Old River and landscaping trees on the wastewater treatment plant facility that could potentially provide nesting habitat for nesting raptors and migratory birds, including Swainson's hawk. The proposed

project would not remove any riparian trees; however, disturbance of nesting raptors (work within 500 feet) would be considered a significant impact and subject to mitigation.

*Mitigation Measure*

**MM 4.8.2** If construction is proposed during breeding season (February-August), a focused survey for migratory bird nests shall be conducted within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests on the site. If active nests are found, California Department of Fish and Game shall be notified and no construction activities shall take place within 500 feet of the nest until the young have fledged as well as other measures deemed necessary by California Department of Fish and Game. If no active nests are found during the focused survey, no further mitigation will be required.

*Timing/Implementation:* Prior to construction activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services and California Department of Fish and Game

Implementation of the above mitigation measure reduces this impact to a **less than significant** level.

**Western Burrowing Owl**

**Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.

Western burrowing owl is designated as a federal and state species of concern. The sides of levees and ruderal grassland areas within the study area provide marginally suitable habitat for this species. Western burrowing owl could establish nests in the project area prior to the onset of project construction. Therefore mitigation measures should be incorporated into the project to avoid impacts to this species.

*Mitigation Measures*

**MM 4.8.3a** If construction is proposed during the breeding season (February-August), a focused survey for burrowing owls shall be conducted in accordance with California Department of Fish and Game protocol within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests. If no active nests are found, no further mitigation is required.

*Timing/Implementation:* Prior to construction activities.

## 4.8 BIOLOGICAL RESOURCES

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*Enforcement/Monitoring:* City of Tracy Development and Engineering Services and California Department of Fish and Game

**MM 4.8.3b** If active nests are found, consultation with California Department of Fish and Game shall be required to determine an appropriate level of avoidance and/ or mitigation. At a minimum, occupied burrows shall not be disturbed during the nesting season (February 1 through August 21) unless a qualified biologist approved by California Department of Fish and Game verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. No construction may take place within 500 feet of active burrows and any burrows to be removed shall be removed during the non-breeding season. Mitigation measures that may be required include preservation in perpetuity of occupied burrows along with a minimum of 6.5 acres of adjacent foraging habitat, or relocation to another suitable preservation area and creation of new burrows and foraging habitat within the preservation area.

*Timing/Implementation:* Prior to construction activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services and the California Department of Fish and Game

Implementation of the above mitigation measure reduces this impact to a **less than significant** level.

### Special-Status Fish Species

**Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.

Several special-status fish species are known to occur or could occur in Old River including Delta smelt, Sacramento splittail, chinook salmon (winter, spring, fall and late-fall runs), and steelhead (Central Valley ESU). Construction of the new diffuser in Old River would require placement of a temporary containment area (coffer dam) around the work area. The containment area would consist of two rows of sheet piles with steel panels between the sheet piles and at the end of the rows. All work in Old River would take place within the containment area to minimize turbidity in Old River and improve safety. The new pipeline would be installed in a trench excavation on the river bottom. The pipeline trench would be backfilled with imported gravel and rock then covered with native material from the excavation. Water within the containment area would be pumped out and clarified before being returned to Old River. Construction may result in entrapment and stranding of eggs, larvae, juveniles, and/or adult fish (all species) and short-term elevated turbidity.

Long-term effects (operational impacts) of the proposed project may include changes in water quality and warm water flushing into the aquatic ecosystem. Temperature changes can have a significant affect on fish species due to the creation of temperature plumes that may disorient migrating fish and overall increased temperature of the aquatic system.

A detailed water quality analysis has been conducted as discussed in Section 4.6, Surface Hydrology, Groundwater, and Water Quality, which considered cumulative water quality impacts associated with the project. A near-field analysis was conducted to evaluate potential impacts associated with elevated water temperature, ammonia, trace metals, and trace organics. A far-field analysis was conducted to evaluate potential impacts associated with dissolved oxygen, total organic carbon, total dissolved solids, pathogens, trace elements and trace organics. For a number of effluent parameters, the impact of the proposed changes resulting from the treated wastewater discharge would result in a localized improvement of water quality. A worst case ammonia model indicates that the mixing zone for ammonia would be less than one percent of the cross sectional area of the river (a drop from 0.5 mg/l ammonia to 0.43 mg/l within two feet of the diffuser. An analysis of effects to dissolved oxygen found that the dissolved oxygen levels within the receiving waters may improve by 0.4 mg/l under the proposed discharge. Minimum dissolved oxygen levels within the South Delta are not projected to be less than 5.0 mg/l for the proposed project with upgraded treatment. Impacts to long-term ammonia and dissolved oxygen levels would therefore not be considered significant.

However the analysis of potential temperature changes found that under low flow conditions, a temperature increase may occur that produces a 0.7 to 3.0 degree Fahrenheit increase at the edge of the mixing zone. This increase is not in compliance with the requirements of the California Thermal Plan. The resulting plume could potentially act as a thermal barrier to migrating fish species and contribute to an overall temperature increase in the Delta system.

In summary, potentially significant effects to fisheries could result from short-term construction impacts and long-term operational impacts. Construction impacts include entrapment and stranding of eggs, larvae, juveniles, and/or adult fish (all species) and short-term elevated turbidity. Operational impacts are primarily related to potential temperature effects. These impacts would be considered significant and subject to mitigation

#### *Mitigation Measures*

**MM 4.8.4a** A Fish Rescue Plan shall be prepared that details measures to avoid take of fish during construction of the coffer dam and pumping of water out of the coffer dam back into Old River. To ensure compliance and implementation of the plan, a fisheries biologist shall be present during construction and pumping (dewatering) activities.

*Timing/Implementation:* Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.

## 4.8 BIOLOGICAL RESOURCES

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*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game

**MM 4.8.4b** Section 7 consultation with the NMFS and USFWS shall be required in conjunction with Corps Section 10 Rivers and Harbors Act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to listed and special-status fish species. Consultation with California Department of Fish and Game would also be required to comply with the California Endangered Species Act. As part of the consultation process, a biological assessment shall be prepared by a fisheries biologist. The biological assessment shall evaluate final design of the coffer dam and clarifying method for water returned into Old River and in-river construction activity. A Mitigation Plan shall be prepared that includes measures to avoid or mitigate short-term construction-related impacts. Mitigation measures necessary to address potential long-term thermal impacts to fish species that could occur as a result of this project are discussed in Mitigation Measure 4.6.1. At a minimum, the following mitigation measures shall be incorporated into the mitigation plan:

- Turbidity and suspended sediment levels in water returned to Old River shall not exceed more than 10% above ambient levels in Old River.
- Prior to any construction activities within Old River, silt curtains shall be put in place around the work area.
- Construction outside of the coffer dam shall occur between June 1 and September 30 (or period requested by the NMFS) to avoid the seasonal period in which juvenile or adult migrating salmonids are present in Old River and the lower San Joaquin River. Seasonal periods (fish windows) and other constraints on dredging and construction activity within the Old River channel will be subject to Section 7 consultation with NMFS and USFWS.
- Requirements and limits on construction and operational impacts (e.g., including specific discharge temperature limits) required to protect listed fish species may be contained in a Biological Opinion issued under Section 7 of the Endangered Species Act, as conditions of the Corps permit, and/or as conditions imposed under the NPDES permit issued by the Regional Water Quality Control Board.

*Timing/Implementation:* Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Game

Implementation of the above mitigation measures would reduce impacts to resident and migratory fish species to a **less than significant** level.

**Jurisdictional Waters of the U.S.**

**Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

Old River is a navigable water and is regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Construction work within Old River would require building a temporary containment area (coffer dam). The new pipeline (sub-surface) and diffuser would be placed permanently within Old River. Placement of structures within Old River would be considered potentially significant and subject to mitigation.

*Mitigation Measures*

**MM4.8.5a** A jurisdictional delineation shall be conducted for the project area. The U.S. Army Corps of Engineers shall be consulted to verify agreement with the results of the determination.

*Timing/Implementation:* Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.

*Enforcement/Monitoring:* U.S. Army Corps of Engineers; National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department Of Fish and Game and the Regional Water Quality Control Board.

**MM4.8.5b** If there will be discharge into jurisdictional waters of the U.S., the appropriate Section 10 and 404 permit needs to be obtained for proposed work within the waters. Construction work within Old River and placement of the new pipeline and diffuser will require permits under both CWA Section 404 and Rivers and Harbors Act Section 10. Water Quality certification or waiver also will be required for this work. Because Old River provides habitat for special-status fish species, it will be necessary to determine appropriate work windows and construction measures to avoid impacts to special-status fish as discussed in more detail in the section on special-status fish species (See Mitigation Measure 4.8.3b).

## 4.8 BIOLOGICAL RESOURCES

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*Timing/Implementation:* Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during coffer dam dewatering.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, U.S. Army Corps of Engineers; National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department Of Fish and Game; and the Regional Water Quality Control Board.

**MM 4.8.5c** Prior to any work within Old River, the California Department of Fish and Game should be contacted to determine whether or not a Streambed Alteration Agreement is required, pursuant to Section 1600 of the California Fish and Game Code. If required, the project applicant shall coordinate with California Department of Fish and Game in developing appropriate mitigation, and shall abide by the conditions of any executed permits.

*Timing/Implementation:* Prior to the issuance of permits for any work within Old River.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, California Department of Fish and Game.

Implementation of the above mitigation measures would reduce impacts to jurisdictional waters of the U.S. to a **less than significant** level.

### CUMULATIVE SETTING

This section addresses the cumulative impacts of the proposed project and other related projects in the Sacramento-San Joaquin Delta. "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines 15355). The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects (CEQA Guidelines 15355).

An assessment of cumulative impacts should consider both impacts identified as significant and those impacts identified as less than significant for individual projects that may become significant in a collective sense when considering the co-occurrence of multiple projects.

For purposes of this analysis, projects that fit these criteria are the following:

- CALFED Bay Delta Program

- Interim South Delta Improvements Program
- Vernalis Adaptive Management Plan (VAMP)
- City of Mantaca Wastewater Quality Control Facility (WQCF) Expansion
- City of Lathrop Wastewater Treatment/Recycling Plant (WRP-1) Expansion
- Mountain House Communtiy Services District-New WWTP and Discharge
- Sacramento Regional County Sanitation District (SRCSD) Wastewater Treatment Plant Expansion
- Continued agricultural and urban storm-water discharges
- Total Maximum Daily Load Program

Information from EIRs and other public documents that discuss the potential effects of these projects were reviewed for this analysis. Brief descriptions of the CALFED program, Interim South Delta Improvements Program, and Vernalis Adaptive Management Plan (VAMP) are included below. Brief descriptions of the other projects are included in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality) and are not repeated below. A summary of the potential aquatic impacts of the proposed project and these related projects is presented along with a discussion of the potential cumulative aquatic impacts of all the projects combined. Although the implementation of the proposed project will not contribute significantly to the loss of natural undisturbed upland habitat in the region or likely increase human intrusion levels in habitat areas, it may adversely affect special-status fish species. For this reason, aquatic impacts are the primary focus of the discussion below.

### RELATED PROJECT SUMMARIES

#### **CALFED Bay Delta Program**

The purpose of the CALFED Program is to "develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system" (CALFED, July 2000). The CALFED program is a interagency effort involving 18 state and federal agencies with management and regulatory responsibilities in the Bay-Delta. The CALFED program is being implemented in several phases. In the first phase, the CALFED Program developed a range of alternatives and conducted public meetings and workshops to obtain public input. The first phase concluded in September 1996 with the development of a range of alternatives for achieving long-term solutions to the problems of the Bay-Delta estuary. Phase II was the programmatic environmental review process. A draft programmatic EIS/EIR and interim Phase II Report identifying three draft alternatives and program plans was released on March 16, 1998. The final programmatic EIS/EIR was released July 21, 2000. The CALFED Program currently in Phase III - implementation of the preferred alternative. Site-specific, detailed environmental review will occur during this phase prior to the implementation of each proposed action. Implementation of the CALFED Bay-Delta solution is expected to take 30 years.

## 4.8 BIOLOGICAL RESOURCES

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The preferred alternative is described in the EIR/EIS in a programmatic manner and therefore specific elements ultimately implemented are subject to further review and analysis. Because of the programmatic nature of the project there is substantial uncertainty regarding specific impacts on fish and other aquatic resources. The CALFED Program incorporates numerous elements that seek to address this uncertainty including the Strategic Plan for the Ecosystem Restoration Program, the Comprehensive Monitoring, Assessment and Research Program, and other monitoring and evaluation programs to assess effects on the aquatic ecosystem, achievement of the CALFED Program objectives, and conformance to CALFED Program principles.

Potential impacts of the CALFED Program that relate to fisheries resources include beneficial impacts such as reactivated and maintained ecological processes and structures that sustain healthy fish, wildlife, and plant populations; increased abundance and distribution of desired aquatic species; improved streamflow, sediment supply, floodplain connectivity, stream temperature, and biological productivity; and reduced entrainment losses. Potential adverse impacts include increased non-native species abundance and distribution; blocked access to habitat and potentially altered water quality and flow conditions from placement of barriers in the south Delta; altered natural ecosystem structure, removal of benthic communities, and creation of conditions that may damage habitat for described species from dredging activities; short-term disturbance of existing biological communities and species habitat; reduced streamflow and Delta outflow, changed seasonal flow, water temperature variability, and changes in salinity potential resulting in reduced habitat abundance.

### **Interim South Delta Improvements Program**

The Interim South Delta Program (ISDP) is a proposed project that includes five project components: (1) construction and operation of a new intake structure at the SWP Clifton Court Forebay; (2) channel dredging along a reach of Old River just north of Clifton Court Forebay; (3) construction and seasonal operation of a barrier in spring and fall to improve fishery conditions for salmon migrating along the San Joaquin River; (4) construction and operation of three flow control structures to improve existing water level and circulation patterns for agricultural users in the south Delta; and (5) increased diversions into Clifton Court Forebay [Interim South Delta Improvements Program (ISDP) EIR/EIS, August 1996].

Objectives of the program are to achieve the following:

1. Increase water levels, circulation patterns, and water quality in the southern Delta area for local agricultural diversions.
2. Improve operational flexibility of the State Water Project to help reduce fishery impacts and improve fishery conditions.

Because of concerns related to both agriculture and the fisheries, a Temporary Barriers Project was initiated to better determine effects of installing permanent barriers in the southern Delta. A five-year program began in 1991 to test a facsimile of the proposed barriers. In 1996, this test was extended for another five years, and again in 2001 for seven years (California Department of Water Resources, 1996).

The findings of the Draft EIR/EIS determined that there would be both benefits and significant adverse impacts associated with the implementation of the proposed ISDP. There would be four principal adverse impacts upon aquatic biological resources: 1) loss of habitat due to the dredging of Old River; 2) loss of habitat due to the construction of the proposed facilities; 3) negative flows in channels leading to the south Delta due to the operation of the barriers; and 4) increased straying, predation, and entrainment losses due to high SWP export pumping during the fall, winter, and early spring. Barrier operations were anticipated to benefit San Joaquin River fall-run chinook salmon because the spring barrier at the head of Old River would reduce entrainment/predation loss of San Joaquin River salmon smolts at the Tracy and Harvey O. Banks Pumping Plant. Water quality in the Delta would be substantially improved due to increased pumping capacity at the Harvey O. Banks Pumping Plant and installation of the barriers in the south Delta. However, operation of the barriers could potentially degrade water quality by rerouting relatively saline waters of the San Joaquin River away from the south Delta pumping plants, and toward the central Delta.

### **Vernalis Adaptive Management Plan (VAMP)**

The Vernalis Adaptive Management Plan (VAMP) was developed to provide protection for juvenile Chinook salmon emigrating from the San Joaquin River through the Sacramento – San Joaquin Delta, and an experimental determination of juvenile Chinook salmon survival in response to San Joaquin River flow and State Water Project (SWP) and Central Valley Project (CVP) exports. According to the San Joaquin River Group Authority (February 13, 2001), the VAMP experimental investigation and sampling program was designed to:

- Serve as the implementation program for the State Water Resources Control Board (SWRCB) 1995 Water Quality Control Plan providing fisheries protection for the lower San Joaquin River;
- Implement elements of the Central Valley Project Improvement Act (CVPIA) Anadromous Fish Restoration Program (AFRP) Delta actions for the lower San Joaquin River;
- Implement interim salmon protective measures within a carefully designed experimental structure which will satisfy the need for immediate protection;
- Provide the scientific information to reduce biological uncertainty regarding the effects of San Joaquin River flow, and SWP/CVP export upon salmon smolt emigration success; and
- Permit greater efficiency and confidence in future decisions regarding conservation of San Joaquin River Chinook salmon stocks.

Impacts of the VAMP program are anticipated to create a less than significant impact to water quality. There may be some beneficial impacts to riparian vegetation and fish including chinook salmon and steelhead under some hydrologic conditions.

## 4.8 BIOLOGICAL RESOURCES

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### CUMULATIVE IMPACTS AND MITIGATION MEASURES

#### Aquatic Resources

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

The cumulative impacts of the proposed project, in combination with the above-described projects and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality), are not directly quantifiable. Combined, programs that are in place and planned may have both beneficial and adverse affects on the aquatic ecosystem. However, it is not possible to quantify the cumulative beneficial and detrimental impacts of these projects with any level of certainty.

If implemented with any degree of success, regional programs in the Sacramento-San Joaquin Delta system such as CALFED, the South Delta Improvements Program, and VAMP along with regulatory controls such as the Clean Water Act, should have an overall beneficial impact to water quality and aquatic resources in the Bay-Delta system. These programs have controls in place to assess success of site-specific actions and continue to monitor affects to aquatic ecosystems. The proposed project has potentially significant affects to fisheries resources resulting from both temporary construction-related and long-term operational impacts to special-status fish species. On a project level, these impacts would be mitigated to a less than significant level by incorporation of mitigation measures suggested in this document and developed in consultation with the appropriate resource agencies. Cumulative adverse impacts of this project combined with other regional projects should be more than offset by the beneficial impacts of regional programs.

Given the uncertainties inherent in implementing such programs on a regional scale and evaluating specific impacts on aquatic resources, it is possible that some elements of the proposed project could contribute to adverse cumulative impacts that may be potentially significant including one or several 303(d)-listed pollutants (see Section 4.6 Surface Hydrology, Groundwater, and Water Quality). If they occurred, these potentially significant impacts would be largely the result of a failure of federal, state, and local efforts in TMDLs to achieve the success that is mandated under the Clean Water Act.

#### *Mitigation Measure*

This issue is addressed through broad state and federal programs and no specific mitigation is proposed.

Cumulative impacts of this project therefore are considered **significant and unavoidable**.

REFERENCES

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**SECTION 4.9**  
**HISTORIC AND CULTURAL RESOURCES**

## 4.9 HISTORIC AND CULTURAL RESOURCES

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This section evaluates potential impacts to cultural resources that could result from implementation of the proposed City of Tracy WWTP expansion project. The evaluation also considers potential pipeline alignments from the treatment facility to the proposed outfall location. The analysis is based on a literature review conducted to identify prehistoric and historic resources within the vicinity of the project components; consultations with various agencies; and a field survey of the proposed outfall location performed by Foothill Archaeological Services (2001). The report prepared by Foothill Archaeological Services is contained in **Appendix I**.

### 4.9.1. EXISTING SETTING

#### PHYSICAL SETTING

The project is located within the northern portion of the City of Tracy UMP area (refer to **Figure 3-1**), on the corner of Larch Road and Holly Drive. The site is within City limits, and provides wastewater collection, treatment, and disposal for residences, businesses, and industries within its designated service area. Surrounding land uses in the project area include industrial uses (the Holly Sugar refining facility and a scrap metal recycling operation) and agriculture. The area of potential effect (APE) for the project is shown in **Figure 4.9-1**. The width of the corridor surveyed ranged from 20 feet from center along roads to 100 feet wide swaths in open terrain.

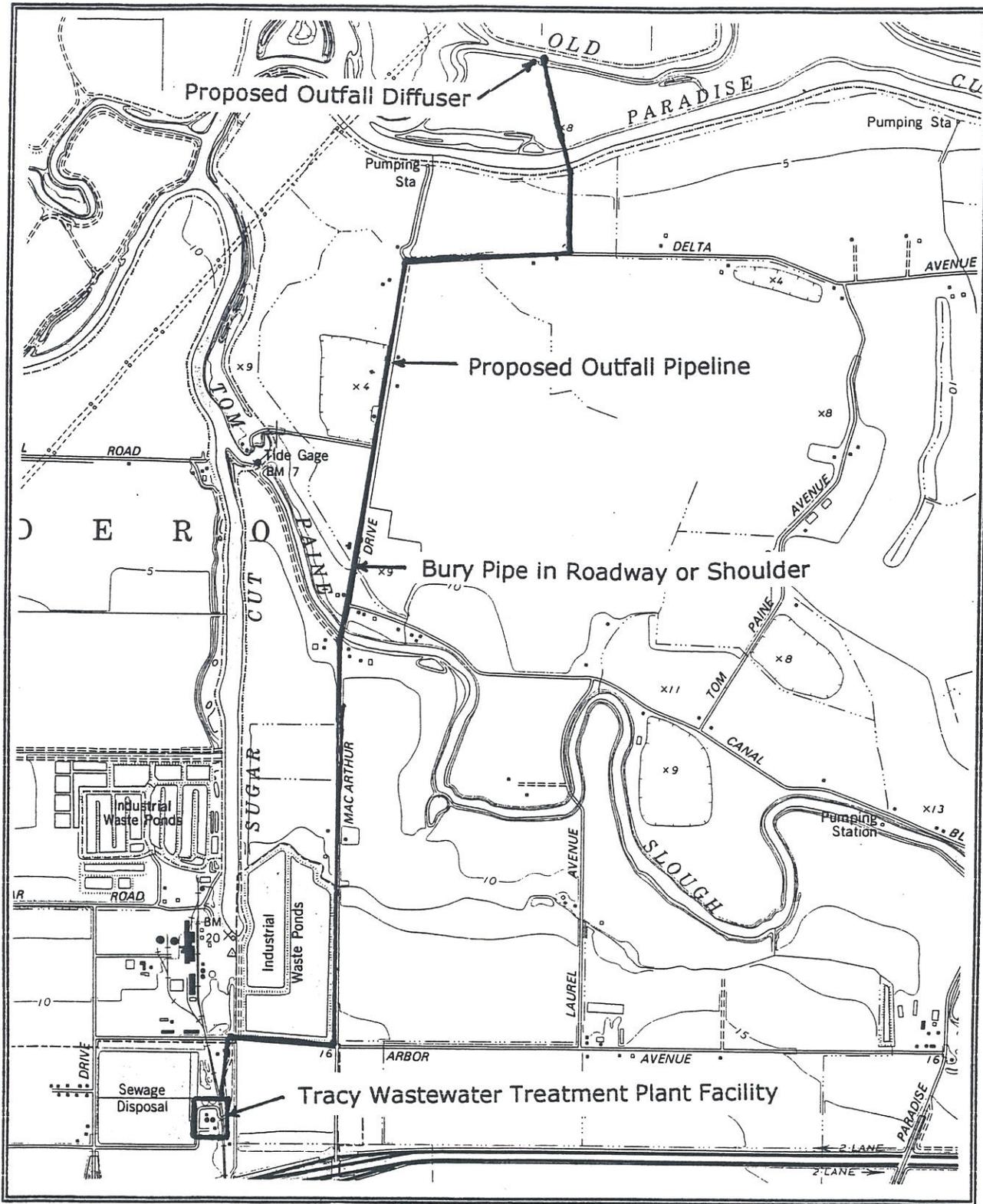
#### PREHISTORY/ETHNOGRAPHY

The San Joaquin Valley (Valley) remains one of the least-known areas in California regarding prehistory. Other than the salvage of late-period Yokuts burial sites, large-scale excavations have been limited to Buena Vista Lake and a series of projects at San Luis, Los Banos and Little Panoche reservoirs.

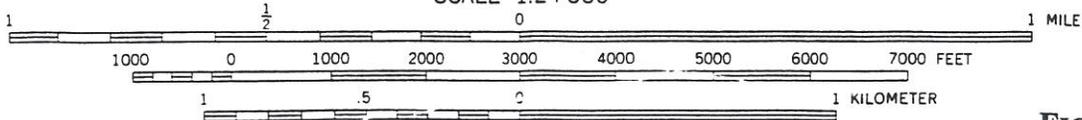
The project area was occupied by the Northern Valley Yokuts at the time of European-American contact. These Penutian speakers made their home in the central portion of California. The native groups speaking Northern Yokuts dialects ranged from the Calaveras River on the north to the southern extent of the San Joaquin River to the south. Their territory also included lands from the crest of the Diablo Range on the west to the foothills of the Sierra Nevada on the east.

The Northern Yokuts are part of a larger population that occupied much of the San Joaquin Valley as well as the foothills on the east and west sides of the valley. There were over 50 different dialects of the Yokuts language, which were remarkably homogeneous from north to south over the 250 mile range inhabited by Yokuts-speaking peoples.

Unfortunately, very little is known of Yokuts societies. The lower or northern San Joaquin Valley is one of the least known ethnographic areas of California. The lack of information concerning the aboriginal inhabitants of this region is due to their rapid disappearance as the result of disease, missionization and the sudden overrun of their lands by miners and settlers during the gold rush (Wallace, 1978).



Note: APE along pipeline route is measured 40 feet from the centerline.  
SCALE 1:24 000



Source: Foothill Associates, 2001

**FIGURE 4.9-1**  
TRACY WASTEWATER TREATMENT PLANT EXPANSION  
AREA OF POTENTIAL EFFECT

The San Joaquin River formed the core territory of Northern Yokuts groups. Along its northern extremities, it formed a wide, tule-choked ribbon of fresh water with many sloughs and shallows which formed a rich habitat for plants and animals, as well as the natives who exploited them. The northern Yokuts tribes were relative late comers to this region, having expanded their territory in the northern San Joaquin Valley just a few centuries prior to the arrival of Europeans. Yokuts villages were situated on natural rises in close proximity to major streams. Several hundred people occupied these settlements annually.

Fishing was the most important subsistence activity among Northern Yokuts groups along with taking waterfowl and hunting (Wallace, 1978). Salmon were the most economically valuable catch. Tule elk and pronghorn antelope once populated the valley in great numbers. These animals provided the major game resource for Yokuts hunters. Deer, rabbits, hares, rodents and snakes were also eaten. Acorns were the principal non-animal staple.

The Tracy area was home to the Hoyumne tribe of Yokuts. They completely disappeared prior to 1850 when settlers began entering the area in significant numbers. Many northern Yokut territories were wiped out by a malaria epidemic. Any knowledge of their culture comes from examination of their archeological sites.

### HISTORY

In 1869, a railroad line was constructed through what is now Tracy. The roundhouse, shop, yards and a hotel were built in Lathrop, which became the center of railroad business and headquarters for the Central Pacific Railroad in the San Joaquin Valley. Due to the volume of business, the railroad found it necessary to build a coaling station at the foot of the Livermore hills, 14 miles west of Lathrop. The new station was called Ellis, which gave Tracy its initial growth. Ellis was established near a settlement called Wickland, founded in 1861 on Old River. This was a loading point for shipping coal. The town of Ellis grew quite rapidly. By November 1870, the town boasted 45-50 buildings including two hotels, a store, blacksmith shop, warehouse, saloon and livery stable. However, ten years later, Ellis was practically deserted (Tinkham, 1923).

During 1870, the Southern Pacific Railroad Company and the Central Pacific Railroad Company merged to become the Southern Pacific Company. In September, 1878, the new company built a branch railroad to San Francisco by way of Martinez and extended the road along the west side of Fresno making a junction approximately three miles east of Ellis. This new railroad junction resulted in the founding of Tracy on September 8, 1878. Railroad officials, seeing no reason for continuing the coal-loading station at Ellis, moved some of the families in Ellis to Lathrop. Others were moved to the new railroad station at Tracy. Residents of Ellis, soon realizing their town was doomed, decided that Tracy would become the leading center and moved their business offices and homes to the new railroad station.

Historical events near the project area were probably dictated more by activities in Corral Hollow than in Tracy or Ellis. Corral Hollow is California Historical Landmark No.755. An early road was mapped in the 1859 government land survey and named, "Stockton to Corral Hollow Road."

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Corral Hollow, probably the site of a prehistoric Indian village, was known as "El Arroyo de los Buenos Aires." The site was on an old Spanish trail, El Camino Viejo. Juan Bautista de Anza passed that way in April 1776. Spanish and Mexican vaqueros made customary use of the trail and then later, during the gold rush, the old trail was used as a road to the southern mines.

The Pacific Coal Mining Company was subsequently organized and this, in turn, became the Commercial Mine and the Eureka Mine (Hoover et. al., 1966). The Commercial Coal Mining Company was incorporated to develop the mine and, in 1894, ownership passed to the Treadwell brothers who had made a fortune in the Alaska gold fields. The Treadwells named the coal property, "Tesla Mine" in honor of Nikola Tesla, the great inventor. They expended nearly a million dollars in improvements including acquisition of the Alameda and San Joaquin Railroad to transport coal to Stockton where they believed the product could be sold to power the railroad as well as steamboats. By 1896, the company began hauling coal to Stockton (Tinkham, 1923).

The 1906 earthquake and the introduction of California oil as the new fuel of industry brought the Treadwells' plan to a halt. Only the wreckage of abandoned dumps marks the site of the Tesla Mine and only a few ruins and exotic trees mark the sites of town life and industry in Corral Hollow.

#### RECORDS SEARCH RESULTS

Two separate records searches were conducted by the Central California Information Center of the California Historical Resources Information System for the proposed project. The first records search encompassed the WWTP site, and existing outfall route and a one-quarter mile radius around the entire project area. The second records search encompassed an expanded project area, three outfall alternatives and a one-half mile radius. The final project area was reduced to a single outfall.

The Central California Information Center, California Historical Resources Information System completed the first records search for the proposed project on September 21, 2000. The Information Center's letter report indicated that five previously recorded archaeological sites were located within the project area. Three of the sites are prehistoric sites and two are historic. One is a trash scatter and the other is an unrecorded section of the Southern Pacific Railroad line.

Five surveys have been performed within the project area and two surveys were performed within a one quarter mile radius. After narrowing the outfall route to the proposed alignment, four of these sites are now located outside of the project area. The three prehistoric sites are completely outside the project area and the historic trash scatter is located within the one-half mile radius. The segment of the Southern Pacific Railroad is near the project area.

The records search also indicated that the outfall system crosses MacArthur Drive at Tom Paine Slough bridge (CalTrans Bridge #29C-0313). The Laurel Road bridge (CalTrans Bridge #29C-0283) at Tom Paine Slough was also identified in the records search. Both bridges were previously evaluated by CalTrans and were not considered eligible for the National Register of Historic Places.

The Central California Information Center, California Historical Resources Information System, completed the second records search for the City of Tracy wastewater treatment plant expansion area and three outfall alternatives routes on November 1, 2000. The Information Center's letter indicated that the only historic resource located within the project area is the Laurel Road bridge (Bridge #29C-0283) at Tom Paine Slough. However, CalTrans determined that the bridge was ineligible for the National Register of Historic Places.

Based on the proposed alignment, only two cultural resources may be affected by the project: the MacArthur Drive bridge (Bridge #29C-0313) at Tom Paine Slough and the Laurel Road bridge (Bridge #29C-0283) at Tom Paine Slough.

### 4.9.2 REGULATORY FRAMEWORK

#### CEQA GUIDELINES

Under CEQA Guidelines, "A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment" (Section 15064.5 [b]). Substantial adverse change is considered ". . . physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (Section 15064.5 [b][2]).

Under the newly revised and recently adopted CEQA guidelines in section 15064.5, a "historical resource" includes: a resource listed in or eligible for the California Register of Historical Resources; or listed in a local register of historical resources; or identified in a historical resource survey and meeting requirements in section 5024.1(g) of the Public Resources Code; or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines historically significant, provided the determination is supported by substantial evidence in light of the whole record; or a resource so determined by a lead agency as defined in Public Resources Code sections 5020.1(j) or 5024.1.

While alteration of the setting of an archaeological site that is eligible only for its information potential may not affect the site's significant characteristics, alteration of a property's location (e.g., removing or damaging all or part of the site) may have a significant adverse effect.

CEQA's Guidelines under Section 15126.4(b)(3) state, "Public agencies should, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature." The guidelines further state that preservation in place is the preferred manner of mitigating impacts, and that preservation ". . . may be accomplished by, but is not limited to, the following:

- 1) Planning construction to avoid archaeological sites;
- 2) Incorporation of sites within parks, greenspace, or other open space;
- 3) Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site; or
- 4) Deeding the site into a permanent conservation easement."

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CEQA guidelines state, "when data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken" (CEQA Guidelines, Title 14, Section 15126.4[b][3][C]). However, "data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource" (CEQA Guidelines, Title 14, Section 15126.4[b][3][D]).

### NATIONAL HISTORIC PRESERVATION ACT

Because federal funding may be utilized for the WWTP expansion, the requirements of Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. §470) must be considered. A Section 106 review is a federal review, separate from any environmental or planning reviews required by State and local laws and ordinances. The purpose of Section 106 is to avoid unnecessary harm to historic properties, which include any National Register of Historic Places listed or eligible prehistoric or historic objects, sites, buildings, structures or districts (National Park Service 1991: Appendix IV-2).

Under the new federal regulations at 36 CFR Part 800, effective June 17, 1999, the basic steps in a Section 106 review include:

- **Initiating the Section 106 process** (a new step to encourage early consideration of the potential effects of the federal permitting or other action, to coordinate with other reviews, to identify consulting parties such as the State Historic Preservation Officer and Federally recognized Indian tribes, and to make plans for other public involvement);
- **Identifying historic properties** (the federal agency is responsible for defining the project area, which, in the case of permits, may be larger than the permit area; also included in this step is the identification of cultural resources, evaluating the eligibility of those resources for the National Register, including sites to which Indian tribes attached religious and cultural significance, determining the eligibility of those resources for the National Register and determining whether or not historic properties will be affected);
- **Assessing Adverse Effects** (the federal agency must consider both direct and indirect effects, reasonably foreseeable effects that are cumulative, late in time or at a distance, and with respect to all qualifying characteristics of a historic property--e.g., if an archaeological site is important for its scientific information potential and for its cultural or religious importance to an Indian tribe, then the adverse effects on both must be considered).
- **Resolving Adverse Effects** (the process of negotiating a Memorandum of Agreement (MOA) between the consulting parties is now streamlined and may involve only the federal agency and the State Historic Preservation Officer as signatories. However, the Advisory Council recommends that the federal agency should invite federally-recognized Indian tribes that attach religious and cultural significance to properties off tribal lands to

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concur with the findings in the MOA. There is no longer a distinction between "consulting parties" and "interested persons." The term "interested persons" has been dropped from the new regulations).

Under federal regulations where, for example, federal funding or permitting is involved, a consultant may gather information necessary for the federal agency to meet its responsibilities under Section 106, but the applicant's consultant must not initiate consultations with Indian tribes and others without authorization from the federal agency official [36 CFR Part 800.2(1)(3) and 800.2(c)(5)]. The consultant may gather information from Indian tribes regarding the identity of and concerns for important religious and cultural sites. However, in accordance with 36 CFR Part 800.2 (c)(3)(ii and iii), the federal government has a unique legal relationship with Indian tribes set forth in the Constitution of the United States, treaties, statutes and court decisions, and therefore, consultations must recognize this government-to-government relationship.

California law protects Native American burials, skeletal remains and associated grave goods on non-federal lands regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code section 7050.5, California Public Resources Code sections 5097.94 *et seq.*).

### CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

The City of Tracy UMP contains goals, policies and actions associated with historic and cultural resources. **Table 4.9-1** includes actions stated in the UMP that are applicable to the proposed project, and summarizes the project's consistency with the UMP.

**TABLE 4.9-1**  
**PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Action CO 6.2.1</b> Require archeological surveys for projects planned for or potentially sensitive sites.	Yes	The proposed project has complied with this action by having a survey conducted to assess potential cultural resources on the project site and along the conveyance pipeline route.
<b>Action CO 6.2.2</b> If evidence or archaeological artifacts are discovered during construction all operations within an area at and adjacent to the discovered site shall halt until a qualified archeologist determines the extent and significance of the site.	Yes	The project includes a mitigation measure consistent with this action to halt construction if previously unknown resources are encountered.

### 4.9.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

Cultural resource impacts may be considered significant if implementation of the project would result in one or more of the following:

#### 4.9 HISTORIC AND CULTURAL RESOURCES

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- 1) Cause a substantial adverse change in the significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5;
- 2) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or,
- 3) Disturb any human remains, including those interred outside of formal cemeteries.
- 4) Alteration to the characteristic of an historic property qualifying it for inclusion in or eligibility for the National Register [36 CFR Part 800.16(i)]

##### **National Register of Historic Places**

Section 106 criteria for assessing adverse effects requires that the federal agency consider both direct and indirect effects as well as reasonably foreseeable effects that are cumulative, late in time or at a distance, and with respect to all qualifying characteristics of a historic property. An historic resource must be significant at the local, state, or national level, if one or more of the following four criteria apply. An historic resources is significant if it is:

- A) Associated with events that have made a significant contribution to the broad patterns of our history; or
- B) Associated with the lives of persons significant in our past; or
- C) Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that posses high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D) Has yielded, or may be likely to yield, information important in prehistory or history.

##### **California Register of Historical Resources**

Standards of significance for historical resources are found in the implementing regulations for the California Register of Historical Resources (Public Resources Code, Section 4850 et seq.). The California Register is an authoritative listing and guide for state and local agencies and private groups and citizens in identifying historical resources. This listing and guide indicates which resources should be protected from substantial adverse change. The criteria used for determining the eligibility of a cultural resource for the California Register are similar to those developed by the National Park Service for the National Register of Historic Places. However, criteria of eligibility for the California Register were reworded to better reflect California history.

An historical resource must be significant at the local, state, or national level, if one or more of the following four criteria apply. An historical resource is significant if it is:

- 1) Associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

## 4.9 HISTORIC AND CULTURAL RESOURCES

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- 2) Associated with the lives of persons important to local, California, or national history;
- 3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
- 4) Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Eligibility for the California Register also depends on the integrity, or the survival of characteristics of the resource that existed during its period of significance. Eligible historic resources must not only meet one of the above criteria, but also must retain enough of their historic character or appearance to convey the reasons for their importance, or retain the potential to yield significant scientific or historical information or specific data.

### **Native American Contacts**

Foothill Archaeological Services contacted the Native American Heritage Commission and requested a search of its sacred lands file and a list of Native American contacts. The commission responded in an October 11, 2000 letter to the consultants. The Commission's letter report indicated that its file search failed to show the presence of Native American cultural resources in the immediate project area.

Conversation between Foothill Archaeological Services and a Native American representative revealed that Native American cultural resources are in the vicinity of the project. However, the representative declined to state if the resources were immediately adjacent to, or within areas that would be impacted by the project.

### **Tracy Historical Society**

Foothill Archaeological Services also contacted the Tracy Historical Society in a December 18, 2000 letter. The letter described the project and included a map of the project area and requested any information or concerns regarding cultural resources in the area. A representative from the Tracy Historical Society responded to the inquiry. The response is included in the discussion on the following page.

### **METHODOLOGY**

The analysis of historic and cultural resources is based on *A Cultural Resource Survey and Assessment of the Tracy Wastewater Treatment Plant Expansion* prepared by Foothill Archaeological Services (January 8, 2001). The assessment was prepared under the recently revised federal regulations at 36 CFR Part 800. Guidance was provided by the Advisory Council on Historic Preservation during an August 5, 1999 briefing in Sacramento to consultants, agency personal and others. The reports findings are based on record searches conducted by the Central California Information Center, California Historical Resources Information System, a field

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survey, and consultations with the California Native American Heritage Commission and the Tracy Historical Society.

### PROJECT IMPACTS AND MITIGATION MEASURES

#### California Register and National Register Properties and Districts

A “district” is usually defined as “a grouping of sites, buildings, structures, or objects linked historically by function, theme or physical development or aesthetically by plan; the properties within a district are usually contiguous” (Townsend et. al, 1993). Based on the criteria identified above, National Register or California Register listed or eligible districts were not identified within the project area by the field archaeologist. In addition, individual California Register or National Register listed or eligible properties were not identified within the project area. Therefore, impacts to California Register and National Register Properties and Districts are considered **less than significant**.

#### Known Cultural Resources

Two cultural resources (CalTrans Bridge #29C-0313) and the Laurel Road bridge (CalTrans #29C-0283) at Tom Paine Slough were documented in record searches for the proposed project. Both bridges have been previously evaluated under contract for the California Department of Transportation. Both bridges were not considered eligible for the National Register of Historic Places. Therefore, impacts are not anticipated to occur to cultural resources and are considered **less than significant**.

#### Undiscovered Cultural Resources

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project’s APE. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant** impact.

Although the project area has been examined, the potential exists for the discovery of buried deposits or features of the area’s archaeological and/or historical past. Northern Valley Yokuts occupied the Tracy vicinity. Discovery of any villages, camps or artifacts from the Northern Yokuts would have the potential to add new information about this ancient culture. Such sites are rare and would constitute a valuable heritage resource for San Joaquin County and the people of California. A representative from the Tracy Historical Society indicated that there were Native American cultural resources in the vicinity of the Holly Sugar plant, but did not indicate if any would be disturbed by the project (Foothill Archaeological Services, 2001). In addition, the representative indicated that trenching for the outfall pipeline may encounter Native Sites. Therefore, disturbance of undiscovered archaeological and/or cultural resources is considered a **significant impact**.

*Mitigation Measures*

**MM 4.9.1a** If any prehistoric or historic artifacts, or other indications of archaeological resources are found once the project is underway, all work in the immediate vicinity must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall be consulted to evaluate the finds and recommend appropriate mitigation measures.

*Timing/Implementation:* Included in construction contracts and implemented during construction activities.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services

**MM 4.9.1b** If human remains are discovered, all work must stop in the immediate vicinity of the find, and the County Coroner must be notified, according to Section 7050.5 of California's Health and Safety Code. If the remains are Native American, the coroner will notify the Native American Heritage Commission, which in turn will inform a most likely descendant. The descendant will then recommend to the landowner appropriate disposition of the remains and any grave goods.

*Timing/Implementation:* Included in construction contracts, and implemented during construction activities.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services

Implementation of the above mitigation measures will reduce potential archaeological and cultural resource impacts to **less than significant**.

**CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES**

CUMULATIVE SETTING

Significant cultural resources are located within the City of Tracy and are identified in the Tracy UMP and UMP EIR. Resources within the city limits are typically historic in nature and have been the subject of a proposed Historic District (i.e. buildings, landmarks) (City of Tracy, 1993b). Resources in the outlying portions of the planning area are generally prehistoric in nature (e.g. Native American burial sites) and are comprised of remnants of native populations that existed prior to settlement by European cultures.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Because of the wide-spread potential for cultural resources in the Tracy Area, almost any kind of land disturbance in the Tracy area presents the opportunity for impacts. For the proposed project, impacts to known resources are considered to be **less than significant**. Project specific

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mitigation (mitigation measures 4.9.1a and 4.9.1b) would avoid destruction or disturbance of previously undiscovered resources once project development is underway. Therefore, the project contribution to this cumulative impact would be **less than significant**.

#### REFERENCES

Foothill Archaeological Services. *A Cultural Resource Survey and Assessment of the Wastewater Treatment Plant Expansion City of Tracy, San Joaquin County, California*. January 8, 2001.

City of Tracy. 1993a. *City of Tracy General Plan/Urban Management Plan*. July 19, 1993.

City of Tracy. 1993b. *Tracy Urban Management Plan/General Plan Final Environmental Impact Report (SCH No. 91092060)*. July 19, 1993.

**SECTION 4.10**  
**PUBLIC SERVICES AND UTILITIES**

## 4.10 PUBLIC SERVICES AND UTILITIES

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This section discusses the environmental impacts on public services and utilities that could result from implementation of the WWTP expansion. As noted in Methodology below, these issues have already been addressed extensively in the UMP EIR (City of Tracy, 1993b). This EIR therefore focuses on project-specific demands and impacts that differ significantly from what is already allowed under the existing setting. As identified in the Notice of Preparation (NOP) (refer to **Appendix A**), potential project impacts related to public services and utilities include fire protection, compliance with applicable regulations, disruption of existing utilities during construction, and disposal of biosolids. Services determined in the NOP to not be affected by the project include Recreation, Law Enforcement and Schools. These services are not discussed in this section of the EIR.

### 4.10.1 ELECTRICAL, NATURAL GAS, TELEPHONE SERVICE/INFRASTRUCTURE IMPROVEMENTS

This subsection of the EIR addresses the existing electricity, natural gas, and telephone services for the project area and evaluates the potential for interference during construction within roadways.

#### EXISTING SETTING

##### **Electrical, Natural Gas, and Infrastructure Facilities**

Beginning in the summer of 2000 the State of California has been subject to the threat of blackouts associated with the shortage of power. The current power crisis has resulted from the deregulation of the electricity market in March of 1998 coupled with growth in demand far exceeding supply. The supply/demand discrepancy has occurred in large part to growth in California's economy beyond previous projections as well as growth in the Pacific Northwest. While construction of approximately 20 new power plants are currently under consideration, it may take years before the plants are actually permitted and built ([www.pge.com](http://www.pge.com)).

Pacific Gas and Electric provides electricity to customers in the City of Tracy. Electrical facilities in the project area include one 12 kV overhead electric distribution line along the south side of Arbor Avenue west of MacArthur Drive; double circuit 12 kV overhead electrical lines on the west side of MacArthur Drive; and single circuit 12 kV lines on the east side of MacArthur Drive north of Tom Paine Slough all the way to Paradise Cut. One 12 kV overhead electrical line is located on the north side of Delta Avenue. No underground PG&E infrastructure is located in Arbor Avenue or MacArthur Drive. However, one 4-inch gas collecting line is located in Arbor Avenue (Palermo, pers. comm., 2001). TriValley Oil and Gas has a gas well located on the Spreckles property north of Arbor Road (Bayley, pers. comm., 2001).

Telephone service is provided throughout Tracy by Pacific Bell. Drainage ditches in the project area are owned and maintained by the City.

## 4.10 PUBLIC SERVICES AND UTILITIES

### REGULATORY FRAMEWORK

#### City of Tracy Urban Management Plan/General Plan

Table 4.10-1 includes policies and actions from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

**TABLE 4.10-1  
PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Policy PF 1.1</b> Optimize use of planning area resources for efficient siting of public facilities.	Yes	The proposed project would be constructed on the existing WWTP site. Conveyance infrastructure would be buried adjacent to existing roadways and in agricultural fields.
<b>Policy PF 1.2</b> Design major facilities such as water and wastewater treatment plants for phased expansions concurrent with growth.	Yes	The project is proposed to be expanded in four phases to accommodate projected growth.
<b>Policy PF 1.7</b> Provide adequate wastewater collection and treatment capacity for planned development in Tracy.	Yes	The project is proposed in order to accommodate planned development in the City.
<b>Policy HO 2.2</b> Provide for adequate infrastructure and services to meet demands generated by residential development.	Yes	The proposed project would accommodate planned residential growth within the City.
<b>Action PF 1.2.1</b> All facilities shall be adequately sized to meet growth.	Yes	The proposed project is sized to accommodate planned growth in the City.

### IMPACTS AND MITIGATION MEASURES

#### Standards of Significance

Project impacts are considered significant if the project results in the following:

- 1) Potential conflict with existing infrastructure and distribution facilities.

#### METHODOLOGY

The impacts of urbanization on existing infrastructure and utilities, including the construction of new or expanded facilities, has been addressed within the EIRs for the UMP. However, conflicts with existing utilities are addressed by this EIR. The WWTP will be implemented entirely on land that is currently served by existing infrastructure, and therefore would not present any on-site conflicts. However, the WWTP includes offsite improvements that could impact existing infrastructure.

PROJECT IMPACTS AND MITIGATION

**Damage to Existing Infrastructure**

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a **potentially significant** impact.

The outfall pipeline to convey the treated effluent to the Old River would be 3.5 miles long (refer to Figure 3-9). The new outfall would be constructed adjacent to the existing plant outfall primarily within the right of way of Arbor Avenue and MacArthur Drive. The alignment would veer east along Delta Avenue still paralleling the existing outfall pipeline then turn north approximately 500 feet west of the existing outfall. From this point, the new alignment would align through agricultural land. Paradise Cut would be crossed using use micro-tunneling technology to avoid impacts to the waterway and surrounding sensitive biological resources.

Both buried and above-ground (e.g. telephone poles, irrigation/drainage channels) are located in or adjacent to the right-of-way along much of the pipeline alignment. However, other buried utilities, such as gas and electric lines, may be disturbed or damaged during construction. In addition, the stability of the drainage channels adjacent pipeline alignment could be compromised if the pipeline is installed too close to the channels.

*Mitigation Measures*

**MM 4.10.1a** The City of Tracy will consult with PG&E, Pacific Bell, and any other known service providers in the area to determine whether construction will impact utilities or occur in proximity to known infrastructure. WWTP development plans shall be reviewed and the recommendations of these agencies shall be incorporated into final development plans.

*Timing/Implementation:* During the planning stage of the project.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

**MM 4.10.1b** The proposed outfall pipeline alignment shall be surveyed by a firm specializing in locating buried infrastructure. This task shall include contacting appropriate utility agencies and companies, reviewing maps, etc.

*Timing/Implementation:* During the design stage of the project.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services

#### 4.10 PUBLIC SERVICES AND UTILITIES

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**MM 4.10.1c** The cost of any repair or relocation of affected infrastructure that results from construction activities will be assumed by the City of Tracy if the utility has prior title to the property.

*Timing/Implementation:* Prior to approval of final improvement plans.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

Implementation of the above mitigation measures would reduce impacts to infrastructure to **less than significant levels**.

#### **Increased Electricity Usage**

The WWTP expansion would require additional electricity to support new facilities, primarily the increased pumping of raw water. The expansion of the aeration basins to provide nitrification and pumping of the clarifier effluent to the new filters are examples of facilities that would increase electrical demands at the WWTP. Average daily usage of electricity for the 90-day period from February 2000 to April 2000 was 10,710 kilo-watt hours to treat an average flow of 7 MGD. This corresponds to 1,530 kWh/day/MGD. The average daily power consumption over the past year was 12,113 kWh/day (Pertinsky, pers. comm., 2001). The expansion would increase demands in association with expanded aeration capacity, new filter pumps, etc., but would reduce power demand associated with the two pumps to the biotowers. Overall, the power demand factor for the expansion was calculated to be 2.51. When this factor is applied to the WWTP's average daily power consumption over the entire past year (12,113 kWh/day), the average daily power consumption for the expansion to 16 MGD is estimated to be 30,400 kWh/day (12,113kWh/day x 2.51) or in increase of 150 percent.

In 1999, PG&E had an estimated power supply capacity of 19,045 megawatts, but has experienced difficulties in providing adequate power in 2001. The California Energy Commission (CEC) has estimated that during peak power use conditions in the summer months of 2001, the State could be short as much as 3,050 megawatts (CEC, 2001). Although the proposed JJWTP expansion and associated pumping facilities for the raw water pipeline would add to State-wide power demands, the CEC (state agency responsible for licensing of power plants) has approved 16 power plants with capacities over 300 megawatts as well as 13 peaker power plants (power plants utilized during peaking power demands) since 1999 that will provide 11,267 megawatts of new capacity. In addition, the CEC is currently reviewing 15 power plant applications that would provide an additional 6,221 megawatts of capacity.

Thus, it is expected that adequate power supplies will be available to serve the proposed project. Therefore, impacts associated with electrical service are considered to be **less than significant**.

The WWTP expansion would result in increased demands for electricity to support new facilities and additional capacity.

### Increased Load on Existing Electrical Facilities

The Tracy area has had consistent electrical load growth which has resulted in total use of the available electrical capacity of the Tracy Distribution Planning Area. Specifically, the Tracy Substation is currently operating at full capacity and any increase would overburden this facility. In order for the Tracy Substation to support additional electrical loads, new loads would have to be shifted to a new substation.

Plans for construction of a new West Tracy Substation are currently in progress. PG&E is proposing to install a 115/12 kV distribution substation on an approximately 5 acre site in the western area of Tracy (Ellis, pers. comm., 2001). While the specific siting of the facility has not been identified, the vicinity being evaluated for a substation site centers on the crossings of PG&E's electric transmission lines of Lammers Road just south of the intersection of Lammers and Shulte Roads near the railroad crossing. Several sites within this vicinity are being evaluated. Based on the preliminary siting, PG&E has prepared an initial environmental review for the project. Based on this review, development of the new substation could result in the following environmental impacts:

- Changes in the existing visual environment.
- Potential impacts to biological resources.
- Changes in ambient noise levels during construction and operation.
- Generation of electromagnetic fields (EMFs).
- Potential electrical fire hazard.
- Increased runoff associated with excavation and grading.
- Minor increases in traffic associated with operational construction traffic.
- Construction-related air quality impacts.

Impacts to the items above could be minimized by careful facility design and avoidance of sensitive areas.

Following implementation, the proposed substation would provide sufficient electricity to accommodate the proposed expansion and expected growth in Tracy. The proposed new substation is tentatively scheduled to be built by the summer of 2003 while Phase 1 of the WWTP expansion is anticipated to be in place by 2004. Therefore, following implementation of the West Tracy Substation improvements, impacts to existing electrical facilities and service to the WWTP would be reduced to **less than significant**.

## 4.10 PUBLIC SERVICES AND UTILITIES

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### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

#### Cumulative Setting

The cumulative setting for telephone and irrigation/drainage channels is limited to the area surrounding the project site and the pipeline corridor. Natural gas and electricity is generally provided on a regional basis. Electricity is allocated statewide through the electrical grid.

#### Cumulative Impacts

The proposed project may result in project-specific impacts to telephone and other infrastructure (e.g. irrigation/drainage channels) in the area. These impacts would be mitigated at a project level. However, as described above, electrical increases associated with the expansion of the WWTP would result in an incremental increase to the State's overall demand for power. As discussed above, adequate electrical supplies are anticipated to serve the WWTP expansion. In addition, the WWTP has a back-up generator available to operate the facility in the event of an emergency. Therefore, impacts to the increase demand for electricity associated with the expansion of the JJWTP are considered **less than significant**.

#### 4.10.2 FIRE PROTECTION

This subsection of the EIR evaluates the impacts on fire protection services (e.g., emergency response) as a result of the proposed project. Once implemented, the project will not significantly increase the demand for fire protection services. Therefore, this section focuses on how project construction may affect emergency fire response.

#### EXISTING SETTING

The Tracy Fire Department covers a service area of 218 square miles (18 square miles in the City and approximately 200 miles in the southern portion of San Joaquin County). The Department has mutual aid agreements with the Manteca Fire Department, the Manteca-Lathrop Fire Department, the California Department of Forestry (CDF), Alameda County Fire Department, Stanislaus County Fire Department, the Tracy Defense Depot and the Livermore Lab Fire Department.

The Department has a total of seven stations. Station 91 is located at Ninth Street and Central Avenue; Station 96 is located at Parker Avenue and Grant Line Road; and Station 97 is located at Tracy Boulevard and West Central Avenue. The latter is an interim facility to be used until a permanent facility is built at the northeast corner of Valpico Road and Tracy Boulevard. Four rural stations include Station 92 located on South Seventh Street, Station 93 located on Durham Ferry Road, Station 94 located on West Schulte Road and Station 95 located on West Linne Road. The Fire Department will be constructing a new fire station on the corner of Eleventh Street and Alden Glen in the future (Zandona, pers. comm., 2001)

The Fire Department currently has 60 line personnel spread out over three 24-hour shifts. In addition, the Department has a reserve force of 25 firefighters ([www.ci.tracy.ca.us/fire.html](http://www.ci.tracy.ca.us/fire.html)). The Fire Department is service-oriented and responds to all fire, first aid, and rescue incidents, as well as citizen service calls.

The UMP EIR notes that the City currently has a light to moderate fire hazard, due to existing land use and development patterns. Fire problems are generally confined to single and multifamily dwellings along with older, unprotected commercial and industrial buildings located primarily in the downtown area. Vacant land, brush, and grass fires account for more than 20 percent of total fire activity.

The Tracy Fire Department's performance objectives include the following: 1) respond to 95 percent of all calls for emergency assistance within 5 minutes of dispatch; 2) provide a minimum of 13 firefighters for initial attack of structural fires within 10 minutes of dispatch; 3) provide a minimum of 20 firefighters for sustained attack of low risk structural fires within 20 minutes of dispatch; and, 4) maintain fire losses at a level not to exceed the average annual losses for the preceding five year period (Hanlon, 1999; Zandona pers. comm., 2001). The Tracy Fire Department is currently a Class Three fire department in terms of the Insurance Service Organization (ISO) rating system, which ranks fire protection and sets insurance rates on a scale from 1 to 10 with 1 being the highest rating.

All construction plans and development proposals are evaluated to determine fire protection needs. The Fire Marshall works closely with other City departments to ensure appropriate design and construction standards, including adequate fire protection water flows and fire resistive building materials, are met within new development projects.

**REGULATORY FRAMEWORK**

CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

Table 4.10-2 includes a policy and action from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

**TABLE 4.10-2  
PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Policy SA 3.1:</b> Provide fire protection and law enforcement to ensure the public's health and safety.	Yes	The proposed project would not result in the need for additional fire protection services.
<b>Action SA 3.1.1:</b> Fire and law enforcement hazards shall be identified in project review and shall be prevented or mitigated to an acceptable level.	Yes	The proposed project includes mitigation (MM 4.10.3) to address potential disruptions to emergency response due to construction along Arbor Avenue, Mac Arthur Drive and Delta Drive.

## 4.10 PUBLIC SERVICES AND UTILITIES

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### IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

Project impacts are considered significant if the project results in the following:

- 1) Demand for additional fire protection staff, equipment or fire stations in excess of the ability of service providers to maintain an acceptable level of service.

#### METHODOLOGY

The analysis of fire protection impacts is based upon review of the project area and existing documentation.

#### PROJECT IMPACTS AND MITIGATION

##### Increased Demand for Special Fire Protection

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant** impact.

Operation of the WWTP may require additional fire protection services as a result of the use of greater amounts hazardous materials in the treatment process. Sodium hypochlorite (for disinfection) and sodium bisulfite (for dechlorination) are proposed for use in association with the WWTP expansion. While sodium hypochlorite is considered a safer alternative to the current use of gaseous chlorine, use of this substance still presents a potential threat if an accidental spill should occur. Sodium hypochlorite would be stored in 4,000 - 10,000 gallon tanks and sodium bisulfite would be stored in 2,000 – 6,000 gallon tanks. The new sodium hypochlorite and bisulfite facilities must comply with the requirements of the Uniform Fire Code (UFC). The UFC requirements are extensive and generally address safety and methods for minimizing the potential for uncontained sodium hypochlorite and sodium bisulfite spills. The code generally requires liquid-tight secondary containment sized to contain a breach of the largest storage tank and for a 25-year, 24-hour storm event. In addition, the code requires safety and hazard signs, drainage and spill control provisions, containment area level monitoring, secondary source of power for electrical systems and seismic protection. The new facilities would be designed to comply with these requirements. In addition, the following mitigation measure is provided.

#### *Mitigation Measures*

**MM 4.10.2** The City of Tracy Fire Department shall review plans for the WWTP facilities to determine the if special fire services or facilities are required. These facilities may include special hazardous material equipment, temporary and/or permanent water

tanks, and fire breaks. The requirements of the Fire Department shall be incorporated into project improvement plans.

*Timing/Implementation:*      *Prior to approval of project improvement plans.*  
*Enforcement/Monitoring:*    *City of Tracy Fire Department and Department of  
Development and Engineering.*

Implementation of the above mitigation would reduce impacts to the City's ability to provide fire services to **less than significant**.

#### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

##### **Cumulative Setting**

The cumulative setting for fire protection is the Tracy Planning Area. The addition or change in the use of hazardous materials at the facility may result in a change in the level of fire protection or service required.

##### **Cumulative Impacts and Mitigation Measures**

The proposed project may result in project-specific impacts to fire protection services. However, the current frequency of calls for fire protection services at the WWTP is low. Further, fire impacts would be mitigated at a project level through project specific mitigation measures. Therefore, cumulative impacts to fire protection service levels are considered **less than significant**.

#### 4.10.3 SOLID WASTE

This subsection of the EIR addresses solid waste generation and disposal capacity as it relates to the proposed project – specifically, the disposal of biosolids from secondary treatment. Existing solid waste disposal facilities are discussed, and the impacts to those facilities and available regulations and capacity are addressed.

##### EXISTING SETTING

As the final step in the wastewater treatment process, the WWTP produces dewatered sludge. The sludge is a solid material that is created after a series of treatments including thickening, digestion and dewatering. Digestion stabilizes the waste sludge to remove organics and destroy pathogens. Thickening and dewatering processes reduce the volume of solids to be disposed. Since the adoption of an ordinance prohibiting the disposal of biosolids in San Joaquin County, the City has contracted with a private hauling company to dispose of the material in Alameda County.

## 4.10 PUBLIC SERVICES AND UTILITIES

### REGULATORY FRAMEWORK

#### CITY OF TRACY URBAN MANAGEMENT PLAN/GENERAL PLAN

Table 4.10-3 includes a policy and action from the UMP that are applicable to the proposed project and summarizes the project's consistency with the UMP.

**TABLE 4.10-3**  
**PROJECT CONSISTENCY WITH URBAN MANAGEMENT PLAN GOALS, POLICIES AND ACTIONS**

Urban Management Plan Goals, Policies and Actions	Consistency with UMP	Analysis
<b>Policy PF 2.5:</b> Manage sludge disposal so as to minimize impacts to environment and public health risks.	Yes	De-watered sludge (i.e. biosolids) is currently hauled to Altamont Pass foothills for land application. This practice is anticipated to continue.
<b>Action PF 2.5.2:</b> Develop long-term sludge disposal plan to identify sludge disposal locations for all sludge generated.	Yes	The proposed project would continue to dispose of de-watered sludge (i.e. biosolids) for beneficial uses including land application and landfill cover.

#### CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the State Legislature passed the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990. According to AB 939, all cities and counties are required to divert 25 percent of all solid waste from landfill facilities by January 1, 1995 and 50 percent by January 1, 2000. Solid waste plans are required to explain how each city's AB 939 plan will be integrated with the San Joaquin County plan. They must promote (in order of priority); source reduction, recycling and composting, and environmentally safe transformation and land disposal. Currently, San Joaquin County's solid waste diversion rate is at approximately 35 percent (Johnson, 1999).

#### REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)

Wastewater biosolids disposal is regulated on the federal, state and local level. Federal Requirements are set forth in U.S. Environmental Protection Agency Part 503. These serve as the basis for waste discharge requirements issued by the RWQCB for land application. However, land application of biosolids is prohibited in San Joaquin County. Disposal into landfills is regulated by the RWQCB. Part 503 regulations do not apply to hazardous sewage sludges or to grit or screenings generated during the preliminary treatment of domestic sewage.

### IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

Project impacts are considered significant if the project results in the following:

- 1) Generate a waste material that requires special facilities that are not currently available.

#### METHODOLOGY

This analysis of solid waste service impacts is based on existing environmental documentation and consultation with local agencies.

#### PROJECT IMPACTS AND MITIGATION

##### **Biosolids Disposal**

Expansion of the wastewater treatment plant would increase the amount of screened and grit solids as well as sludge (biosolids) currently generated at the WWTP. However, disposal of screened and grit solids are not expected to exceed the permitted capacity of the landfill disposal site.

The WWTP is also expected to generate approximately 6,864 pounds per day, or 1,253 tons per year of biosolids in association with the expansion of the WWTP (Bayley, pers. comm., 2001). It is the City's protocol to stockpile sludge for a period of one year. This allows time for additional drying, decomposition, and reduction in the potency of the pathogens, which allows the sludge to meet the criteria for land application. An analysis of sludge from the existing wastewater treatment plant indicates that the sludge pollutant concentrations are lower than the EPA's maximum pollutant concentration limits. Therefore, EPA regulatory restrictions are not expected to affect future land application of sludge (City of Tracy, 1994). Once thoroughly dried, the biosolids are land applied in the Altamont Hills. Due to the delays in obtaining approvals for the land application site, biosolids were used as alternative cover at the Vasco Road Landfill in 2000. However, due to the high quality of biosolids produced by the WWTP, they will most likely continue to be land applied as landfill space is typically used for lesser quality materials (Bayley, pers. comm., 2001).

As noted above, the City does not currently dispose of sludge into landfills. However, biosolids have been used in the past as landfill cover. When this occurs, the capacity of the landfill is not affected because daily cover of some sort (e.g. dirt) is typically applied to reduce odors, flies, etc. Therefore, disposal of 1,253 tons of biosolids per year as landfill cover would not reduce available landfill capacity. This impact is considered **less than significant**.

## 4.10 PUBLIC SERVICES AND UTILITIES

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### CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

#### Cumulative Setting

The cumulative setting for solid waste includes all land uses within the UMP and San Joaquin County. Buildout of the UMP would increase the amount of solid waste generated as well as the amount of landfill space needed. This issue has been addressed in the UMP EIR (City of Tracy, 1993b). However, the proposed project would not increase demand for landfill capacity.

#### Cumulative Impacts and Mitigation Measures

The proposed project would result in increased amounts of biosolids generated at the WWTP. It is assumed that these materials would continue to be applied to ranchlands in the Altamont Hills of Alameda County. If an event were to occur that would disrupt the land application of biosolids (e.g. a delay in permitting), the material would be used as daily landfill cover in Alameda County and would not be disposed of in a landfill. Therefore, cumulative impacts to landfill capacity are considered **less than significant**.

#### REFERENCES

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- City of Tracy Fire Department Website [www.ci.tracy.ca.us/fire.html](http://www.ci.tracy.ca.us/fire.html)
- City of Tracy. 1993a. *City of Tracy Urban Management Plan/General Plan*. Tracy, California. July 19, 1993.
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## 5.0 CUMULATIVE IMPACTS SUMMARY

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## 5.0 CUMULATIVE IMPACTS SUMMARY

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This section identifies the cumulative impacts associated with the proposed project. Cumulative impacts expected from the proposed project are the result of combining the potential effects of the project with other cumulative development, and foreseeable development projects.

### 5.1 LEGAL CONSIDERATIONS

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to CEQA Guidelines Section 15130(a), "an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects. As defined in CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. A cumulative impact occurs from the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

In addition, Section 15130(b) identifies that the following three elements are necessary for an adequate cumulative analysis:

- (1) Either:
  - (a) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or,
  - (b) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.
- (2) A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and
- (3) A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe

## 5.0 CUMULATIVE IMPACTS SUMMARY

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its basis for concluding that the incremental effect is not cumulatively considerable. CEQA Guidelines Section 15130(a) also states the following with regard to cumulative impacts that are not significant:

- An EIR is not required to discuss impacts which do not result in part from the project evaluated in the EIR. (Section 15130(a)[1]);
- When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. (Section 15130(a)[2]);
- An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. (Section 15130(a)[3]).

An EIR may determine that a project's contribution to a significant cumulative impact is de minimus and thus is not significant. A de minimus contribution means that the environmental conditions would essentially be the same whether or not the proposed project is implemented. (Section 15130(a)[4]).

## 5.2 CUMULATIVE SETTING

Cumulative settings for each individual issue area (e.g. land use, traffic and circulation, etc.) are described in section 4.0. A summary of cumulative impacts for each specific issue area is provided below.

### DEVELOPMENT ANTICIPATED UNDER CUMULATIVE CONDITIONS

The City of Tracy UMP identifies planned growth on 72,570 acres covering twelve land use designations (very low, low, medium and high residential, industrial, commercial, public facilities, parks, open space, federal reserve/open space, aggregate, agriculture). Development proposed in the UMP is estimated to take 20 years or more to buildout and would include approximately 57,107 housing units, 153,264 jobs and a population of 162,345 (City of Tracy, 1993b).

The assumed 2020 cumulative scenario used as a baseline for the project includes the buildout of all reasonably foreseeable projects within the TPA and surrounding region. A 2020 timeframe was used to consider additional projects that have been proposed since certification of the UMP EIR. Development projects under the cumulative scenario are summarized in **Table 5-1** below. Additional information on these developments is available at the City of Tracy Department of Development and Engineering Services.

**TABLE 5-1  
CUMULATIVE DEVELOPMENT ASSUMPTIONS**

Specific Plans and PUDs	Level of Buildout Potential at 2025
Residential Specific Plan (RSP)	100%
Industrial Specific Plan (ISP)	100%
I-205 Specific Plan (I-205)	100%
Infill	100%
Plan C	100%
Northeast Industrial (NEI)	100%
Elissagaray	100%
Lourence Ranch	100%
Presidio	100%
Filios	100%
Tracy Gateway	100%
Tracy Hills Specific Plan	100%
South Schulte Specific Plan	25% (Residential Only)
Castro	25%
Kagehiro	25%
Saddlebrook	25%
Moitoso II	25%
Soucheck	25%

Source: Fehr & Peers, 2000

**5.3 CUMULATIVE IMPACT ANALYSIS**

Identified below is a summary of the cumulative impacts identified in Section 4.0 of this EIR.

**LAND USE**

The proposed project would not result in direct cumulative impacts to land use because the expansion would occur within the boundaries of the existing site. The outfall pipeline would be located within existing roadway right-of-way or through agricultural lands and would be adjacent to the existing outfall facility. As a result, the proposed project would not result in any significant cumulative impacts to land use.

The WWTP expansion would provide wastewater treatment to support a portion of development that is planned for as part of the UMP. Cumulative land use impacts associated with buildout of the UMP have been previously examined in the UMP EIR (City of Tracy, 1993b). The proposed project would accommodate these uses and would not result in any new impacts to land use not previously addressed in the UMP EIR and Project EIRs.

Indirect, or secondary impacts of the project relative to land use would also be considered less than significant because the project would accommodate planned development of lands within the UMP. Development of lands within the UMP has already been addressed in the UMP EIR (SCH. No. 91092060) (City of Tracy, 1993b). Therefore, cumulative land use impacts of the project would be **less than significant** and are discussed further in Section 7.0 (Growth-Inducing Impacts).

## 5.0 CUMULATIVE IMPACTS SUMMARY

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### HUMAN HEALTH/RISK OF UPSET

Cumulative impacts would result if other planned projects in the vicinity of the WWTP included the addition of hazardous materials above planning thresholds (i.e., volumes triggering preparation of a hazardous materials business plan [HMBP] according to H & SC Sections 25500 et seq.). This would change the total amount of hazardous materials being transported over public roadways and stored near the WWTP location. None of the projects listed in **Table 5-1** are in the vicinity of the WWTP. Therefore, cumulative impacts related to the addition of hazardous materials are considered **less than significant**.

Liquid sodium hypochlorite (NaOCl) and sodium bisulfite (NaHSO<sub>3</sub>) will replace chlorine gas and sulfur dioxide as disinfectant. The sodium compounds are liquid and accidental releases are easier contained and affect a smaller area than gaseous releases. This is considered a **beneficial impact** of the proposed project.

The WWTP expansion project will not affect or redirect the flow of floodwaters in the area. Therefore, cumulative flood risk impacts would not occur as a result of this project and are considered **less than significant**.

### TRAFFIC AND CIRCULATION

At buildout, the UMP projects an ADT of 158,030 on I-205 between Tracy Boulevard and MacArthur Drive (City of Tracy, 1993b). The proposed expansion of the WWTP would add approximately 2,250 additional trips to the plant each year. Assuming all of these trips used I-205 (worst case scenario), this would result in approximately a minute increase in traffic volumes to this segment of I-205. This is less than significant for the project's contribution to cumulative impacts. Significant and unavoidable cumulative traffic impacts to freeways as a result of development of the TPA under the UMP were addressed in the UMP EIR (SCH. No. 91092060). Findings of Fact and a Statement of Overriding Considerations were adopted by the City (Resolution 93-226).

### NOISE

As described in the Section 4.4, the proposed project is not anticipated to exceed noise standards. The surrounding areas are currently agricultural and industrial uses. Future uses include light industrial in addition to the continuance of agricultural operations. Neither of these uses is considered noise sensitive. No residences are currently affected by noise from the WWTP. Further, existing residences in the area would not be adversely affected by operational or traffic noise from the plant following expansion. Construction noise would be temporary and not result in a long-term increase in cumulative noise levels. Further, mitigation is provided to reduce noise impacts associated with construction noise. Therefore, cumulative noise impacts are considered **less than significant**.

### AIR QUALITY

Cumulative impacts would result if other planned projects in the vicinity of the WWTP were to be stationary sources (e.g. industrial) of air emissions. This would change the total amount of air pollutants being emitted near the WWTP location. None of the projects listed in **Table 5-1** are in the vicinity of the WWTP. In addition, the proposed project will result in an overall decrease of criteria pollutants from the facility. Therefore, cumulative impacts to air quality within the vicinity of the WWTP do not occur as a result of this project.

The SCVAPCD Air Quality Attainment Plan addresses cumulative impacts of air emissions in the air basin, and sets guidelines and policies to manage and, where necessary, to reduce specific pollutant emissions in the basin. The Plan must take into account the projected population growth and development in approved general plans in the Basin. Because the WWTP expansion is sized only to meet planned growth, and is consistent with the Tracy's UMP, any cumulative impacts in the air basin have been addressed by the Air Quality Attainment Plan. Cumulative impacts are less than significant.

### SURFACE HYDROLOGY, GROUNDWATER, AND WATER QUALITY

**Impact 4.6.3** From a conservative (i.e., worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants that the project would contribute to.

The cumulative impacts of the proposed project, in combination with the above-described projects, are not directly quantifiable. Significant uncertainties exist regarding the future configuration and operation of Delta facilities. Additionally, numerous programs and projects are planned or are in progress to improve flow conditions, increase and improve in-stream and riparian habitat, and improve water quality over the next several decades. However, it is not possible to quantify the cumulative beneficial and detrimental impacts of these projects with any rigor.

A point of view held by some posits that CALFED programs and policies are intended to improve both water quantity and quality in the Bay-Delta system, and thus enhance overall ecosystem health and further water management for beneficial uses in the region. Regulatory pressure exists under the Clean Water Act (e.g., Section 303(d) program) to eliminate violations of water quality standards over the next 15 to 25 years. Safe Drinking Water requirements will ensure that finished water provided to users is safe and reliable.

Each project will be required to assess these impacts under CEQA. Increased monitoring and accounting of ambient conditions, including flow and water quality will provide the basis for future regulatory controls. The regulatory system under the Clean Water Act is geared to prevent significant changes in water quality. It is anticipated that the results of monitoring will be used to assess adverse trends in important water quality parameters, and that the results of that work will be used in the CEQA process and in regulation of future projects to ensure that water quality and beneficial uses are protected in accordance with the mandates of the Clean Water Act and

## 5.0 CUMULATIVE IMPACTS SUMMARY

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the California Water Code. On the other hand, growth and development in the Central Valley will place increased pressure on water supplies and will increase loadings of some pollutants to surface waters.

Given the above uncertainties, the determination of the significance of future cumulative impacts on surface water quality is problematic. From a conservative (i.e., worst-case standpoint), it may be projected that cumulative future impacts may be **potentially significant** for one or several 303(d)-listed pollutants. If they occurred, these potentially significant impacts would be largely the result of a failure of a federal, state and local effort in TMDLs to achieve the success that is mandated under the Clean Water Act.

### *Mitigation Measure*

Because this issue is addressed through the broad state and federal programs, there is no project specific mitigation measure proposed. This is considered a significant and unavoidable impact.

## GEOLOGY AND SOILS

Impacts associated with geology, soils and seismicity as a result of the proposed project would be limited to the WWTP site and outfall pipeline route. As a result, the impacts would be site-specific and no significant cumulative impacts would occur. Impacts would be mitigated through project specific mitigation measures. Therefore, cumulative impacts relative to geology or geologic hazards are considered **less than significant**.

## BIOLOGICAL RESOURCES

### **Aquatic Resources**

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

The cumulative impacts of the proposed project, in combination with the above-described projects and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality), are not directly quantifiable. Combined, programs that are in place and planned may have both beneficial and adverse affects on the aquatic ecosystem. However, it is not possible to quantify the cumulative beneficial and detrimental impacts of these projects with any level of certainty.

If implemented with any degree of success, regional programs in the Sacramento-San Joaquin Delta system such as CALFED, the South Delta Improvements Program, and VAMP along with regulatory controls such as the Clean Water Act, should have an overall beneficial impact to water quality and aquatic resources in the Bay-Delta system. These programs have controls in place to assess success of site-specific actions and continue to monitor affects to aquatic

ecosystems. The proposed project has potentially significant affects to fisheries resources resulting from both temporary construction-related and long-term operational impacts to special-status fish species. On a project level, these impacts would be mitigated to a less than significant level by incorporation of mitigation measures suggested in this document and developed in consultation with the appropriate resource agencies. Cumulative adverse impacts of this project combined with other regional projects should be more than offset by the beneficial impacts of regional programs.

Given the uncertainties inherent in implementing such programs on a regional scale and evaluating specific impacts on aquatic resources, it is possible that some elements of the proposed project could contribute to adverse cumulative impacts that may be potentially significant including one or several 303(d)-listed pollutants (see Section 4.6 Surface Hydrology, Groundwater, and Water Quality). If they occurred, these potentially significant impacts would be largely the result of a failure of federal, state, and local efforts in TMDLs to achieve the success that is mandated under the Clean Water Act.

### *Mitigation Measure*

This issue is addressed through broad state and federal programs and no specific mitigation is proposed.

Cumulative impacts of this project therefore are considered **significant and unavoidable**.

### HISTORIC AND CULTURAL RESOURCES

Because of the wide-spread potential for cultural resources in the Tracy Area, almost any kind of land disturbance in the Tracy area presents the opportunity for impacts. For the proposed project, impacts to known resources are considered to be **less than significant**. Project specific mitigation (mitigation measures 4.9.1a and 4.9.1b) would avoid destruction or disturbance of previously undiscovered resources once project development is underway. Therefore, the project contribution to this cumulative impact would be **less than significant**.

### PUBLIC SERVICES AND UTILITIES

The impact on the City's public services and utilities is a direct result of cumulative growth and development. However, such increases in demand for services can generally be quantified and mitigated as development occurs.

As noted in Section 4.10, the project would place increased demands on public services, with the exception of electricity. The City of Tracy Substation is currently operating at full capacity and cannot accommodate any increase in demand. Therefore, cumulative impacts to electrical distribution are considered **potentially significant**.

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## 6.0 ALTERNATIVES TO THE PROJECT

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## 6.0 ALTERNATIVES TO THE PROJECT

### 6.1 INTRODUCTION

#### GENERAL CEQA REQUIREMENTS

The purpose of the alternatives analysis in an Environmental Impact Report (EIR) is to describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project, and to evaluate the comparative merits of the alternatives (CEQA Guidelines, Section 15126.6[a]). Additionally, Section 15126.6(a,b) of the CEQA Guidelines requires consideration of alternatives that could reduce or eliminate any significant adverse environmental effects of the proposed project, including alternatives that may be more costly or could otherwise impede the project's objectives. The range of alternatives considered must include those that offer substantial environmental advantages over the proposed project and may be feasibly accomplished in a successful manner considering economic, environmental, social, technological, and legal factors

### 6.2 PROJECT ALTERNATIVES

Both treatment and disposal alternatives are included in the following alternatives analysis. The No Project Alternative is also discussed in accordance with CEQA Section 15126.6(3). These alternatives are included summarized in **Table 6-1** below.

**TABLE 6-1**  
**SUMMARY OF PROJECT ALTERNATIVES**

<b>Disposal Alternatives</b>	<b>Treatment Alternatives</b>
No Project Alternative	Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd)
Co-Location Alternative	Advanced Treatment
Dougherty Cut Alternative	
Old River South Alternative	
Sugar Cut Alternative	
Tom Paine Slough Alternative	
Maximum Summertime Reuse of Water (no seasonal storage)	
Maximum Reuse of Recycled Water (with seasonal storage)	

In the discussion that follows, each alternative is compared to the proposed project relative to each environmental issue area (e.g. land use, human health/risk of upset, etc.). A determination is made as to whether to the alternative would result in impacts that are less intense, more intense, or similar to the proposed project. The results of the comparison are summarized in tabular form at the end of the discussion.

## 6.0 ALTERNATIVES TO THE PROJECT

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### DISPOSAL ALTERNATIVES

Several disposal alternatives were considered prior to selecting the proposed project. The alternatives were evaluated in the Facilities Plan (CH2M Hill, 2001) based on engineering/construction feasibility (including construction and maintenance requirements); length of pipeline (the longer the pipeline, the greater the costs and potential impacts to biological resources, cultural resources, and traffic); water quality impacts/level of dilution (minimize biological impacts and impacts to downstream water users). Alternatives considered include:

- No Project Alternative
- Co-location Alternative
- Dougherty Cut Alternative
- Old River South Alternative
- Sugar Cut Alternative
- Tom Paine Slough Alternative
- Maximum Summertime Reuse of Water (no seasonal storage)
- Maximum Reuse of Recycled Water (with seasonal storage)

### TREATMENT ALTERNATIVES

Two treatment alternatives were considered to meet potential advanced treatment requirements. The alternatives were developed in response to discussions with the RWQCB, facilities planning work completed to date, and input received in response to the NOP.

Tertiary treatment consists of filtration and disinfection of secondary treated flows. Further treatment of tertiary flows can be achieved through advanced treatment. Contaminants including trace organics, metals, and dissolved materials (e.g. salts) can be removed through advance treatment such as microfiltration (MF) or reverse osmosis (RO). Both MF and RO use pressure driven membrane systems to separate water molecules from larger particle contaminants. Treatment alternatives include:

- Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd)
- Advanced Treatment

### 6.3 DISCUSSION OF ALTERNATIVES

#### NO PROJECT ALTERNATIVE

##### **Description of Alternative**

CEQA Guidelines Section 15126.6(e) requires that a "no project" alternative be evaluated in an EIR. This alternative considers the environmental effects of not approving the proposed project and the future development of all the project sites consistent with the existing land use designations. Under this scenario, wastewater treatment would continue to be provided from the existing WWTP with no expansion in capacity. This would obviously limit future development within the WWTP service area unless other provisions for wastewater treatment are made (e.g. satellite treatment plants).

##### **Comparative Analysis - No Project Alternative and the proposed project**

###### **Land Use**

The No Project Alternative would avoid all land use and planning conflicts associated with the proposed WWTP expansion. The No Project Alternative would continue to use existing WWTP facilities and outfall pipeline to Old River. No new construction would occur to cause land use conflicts for the No Project Alternative. However, impacts to land use for the proposed project were considered less than significant. Therefore, impacts on land use of the No Project Alternative and the proposed project would be similar and considered less than significant.

###### **Human Health/Risk of Upset**

The No Project Alternative would avoid potential exposure of construction workers to hazardous substances during construction. Chlorine gas would continue to be used at the WWTP under the No Project Alternative. This would result in more intense impacts than the proposed project as it would use sodium hypochlorite and sodium bisulfite. Potential black-outs would be less than significant for both the No Project Alternative and the proposed project because the City has a back-up diesel fueled generator to provide power in the event of an emergency.

###### **Traffic and Circulation**

The No Project Alternative would result in no change in existing traffic volumes to the WWTP (e.g. employees, annual haul trips). In addition, traffic on area roadways would not be disrupted because construction of a new outfall pipeline would not occur. Therefore, the No Project Alternative would result in less intense impacts to traffic than the proposed project.

## 6.0 ALTERNATIVES TO THE PROJECT

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### Noise

The No Project Alternative would result in no change in existing noise levels at the WWTP. No new operations would be added that would potentially increase noise. In addition, no short-term construction noise would occur on project area roadways that could potentially disturb the few homes in the area. Therefore, the No Project Alternative would result in less intense noise impacts than the proposed project.

### Air Quality

The No Project Alternative would result in no change in operations emissions, odor or conformity with applicable federal regulations. The No Project Alternative would result in less intense air quality impacts than the proposed project because no construction would occur thereby avoiding temporary construction equipment emissions and dust.

### Surface Hydrology, Groundwater and Water Quality

The No Project Alternative would result in continued discharge of effluent to Old River that would have a higher concentration of pollutants (e.g. total suspended solids, turbidity, coliform, etc.) than the proposed project. Therefore, the proposed project would improve water quality. However, potential water quality impacts associated with construction of the proposed project would be avoided with the No Project Alternative. In summary, less intense impacts to water quality would occur in the short-term under the No Project Alternative compared to the proposed project. In contrast, more intense impacts to water quality would occur in the long-term under the No Project Alternative compared to the proposed project.

### Geology and Soils

The No Project Alternative would have no impact on geology and soils as no new facilities would be constructed.

The proposed project could result in the following impact relative to seismic hazards:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant impact.**)

The WWTP site would be subject to seismic impacts similar to the proposed project. The existing WWTP has not experienced any problems relative to liquefaction or expansive soils. Therefore, the impacts of the proposed project relative to these issues could be more intense than for the No Project Alternative. Similarly, because the proposed project would involve construction of outfall infrastructure in new areas, the potential for erosion would be more

intense than under the No Project Alternative. This is especially the case for areas of construction through agricultural land and near Old River where the potential for erosion is greatest.

### **Biological Resources**

The No Project Alternative would not result in any land disturbance associated with construction. As a result, impacts to nesting raptors and migratory birds, Western burrowing owl, special status species, jurisdictional waters, etc., would be avoided. In addition, no change in effluent temperature would occur in association with the No Project Alternative. However, no improvements in effluent quality would be gained with the No Project Alternative while, the proposed project would result in improved treatment levels and better quality effluent discharged to Old River.

### **Historic and Cultural Resources**

The No Project Alternative would result in no impacts to cultural and historic resources. While no historic or cultural resources were identified within the Area of Potential Effect (APE) for the proposed project, there is always the possibility that previously unknown resources could be discovered during construction. The following impact relative to undiscovered resources was identified for the proposed project.

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project area. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

Therefore the proposed project would have the potential for more intense impacts to historic and cultural resources than the No Project Alternative.

### **Public Services and Utilities**

The No Project Alternative would result in no impacts to public services and utilities. Existing utilities would not be disturbed as no construction would occur. In addition, no increase in electrical distribution or demand would occur. Therefore, impacts to electrical supply would be less intense under the No Project Alternative than for the proposed project. Both the No Project Alternative and the proposed project would be subject to the threat of occasional black-outs. However, the City has back-up generators available to supply power in the event of an emergency. With regard to fire protection, both the No Project and the proposed project would involve use of hazardous materials and be subject to the following impact:

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

## 6.0 ALTERNATIVES TO THE PROJECT

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However, chemicals associated with the proposed project are a safer than gaseous chlorine which is currently used. Generation of biosolids would approximately double under the proposed project compared to the No Project. However, disposal impacts would be less than significant, and therefore similar, for both the proposed project and the No Project Alternative.

### **Comparison Summary for the No Project Alternative and the Proposed Project**

The No Project Alternative would result in less intense impacts than the proposed project relative to the following issue areas: land use, traffic and circulation, noise, air quality, and historic and cultural resources, and public services and utilities.

The No Project Alternative would result in more intense impacts than the proposed project relative to human health/risk of upset, surface hydrology, groundwater and water quality, geology and soils, and biological resources.

#### CO-LOCATION ALTERNATIVE

##### **Description of Alternative**

This alternative would co-locate a new diffuser outfall adjacent to the existing outfall at Old River. The outfall pipeline would follow the same route as the existing pipeline along Arbor Avenue, MacArthur Drive and Delta Avenue. The Co-Location Alternative would essentially duplicate the existing diffuser and provide additional effluent conveyance and disposal to accommodate increased flows from the WWTP. This alternative differs from the proposed project in that it proposes siting a new diffuser at the same location as the existing diffuser instead of separating the two. This alternative was considered based on engineering and construction feasibility.

##### **Comparative Analysis - Co-Location Alternative and the Proposed Project**

###### **Land Use**

The Co-Location Alternative would result in land use impacts similar to the proposed project. Although the new infrastructure would be located on the existing WWTP site and follow the same pipeline route, temporary land use conflicts could occur in association with construction. These impacts would be temporary and are considered less than significant for both the Co-Location Alternative and the proposed project.

###### **Human Health/Risk of Upset**

The Co-Location Alternative would result in human health/risk of upset impacts similar to the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester

gas, flooding and power outage would be less than significant for both the Co-Location Alternative and the proposed project.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Co-Location Alternative.

### Traffic and Circulation

Both the Co-Location Alternative and the proposed project would result in temporary increases in traffic associated with construction of the WWTP expansion. Similarly, the Co-Location Alternative and the proposed project would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries and sludge removal. Because area roadways (e.g. MacArthur Drive, Delta Avenue) are not subject to high volumes of traffic, impacts resulting from the aforementioned increases are considered less than significant.

The proposed project could result in the following impact relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

A similar impact could result in association with implementation of the Co-Location Alternative. In addition, traffic on area roadways would be disrupted in association with construction of the new outfall pipeline for both the Co-Location Alternative and the proposed project. Therefore, the Co-Location Alternative would result in impacts to traffic that are similar to those of the proposed project

### Noise

In the short-term, construction noise associated with the Co-Location Alternative would occur on project area roadways potentially disturbing the few homes in the area. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

## 6.0 ALTERNATIVES TO THE PROJECT

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Therefore, the Co-Location Alternative would result in noise impacts similar to those of the proposed project. Once in operation, increased pumping noise would be generated in association with the outfall pipeline. The following impact was identified for the proposed project.

**Impact 4.4.2** Noise generated by mechanical equipment (pumps) located along the outfall pipeline could result in noise levels which exceed the San Joaquin County Code noise policies at residences located near such equipment. Therefore, this is considered a **potentially significant** impact.

A similar impact would be anticipated in associated with the Co-Location Alternative.

### Air Quality

The Co-Location Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant** impact.

Because both the Co-Location Alternative and the proposed project are almost the same length, air quality impacts resulting from construction would be virtually identical. Operational impacts (emissions, odor, etc.) would be less than significant for both the Co-Location Alternative and the proposed project.

### Surface Hydrology, Groundwater and Water Quality

Both the proposed project and the Co-Location Alternative include the same level of treatment prior to discharge. Therefore, the effluent discharged to Old River would have exactly the same quality. However, Old River is shallower at the discharge point of the Co-Location Alternative (i.e. 10 to 19 feet deep during high tide) than at the proposed project outfall location. Because better dilution occurs at the proposed outfall, impacts to surface hydrology would be more intense for the Co-Location Alternative than for the proposed project.

The proposed project is anticipated to result in a temperature increase to receiving waters:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

The Co-Location Alternative would most likely result in a temperature increase to receiving waters as well.

Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project.

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Similarly, cumulative water quality impacts would be anticipated to be significant for the Co-Location Alternative.

### Geology and Soils

The Co-Location Alternative would follow essentially the same route to Old River as the proposed project's outfall pipeline. The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a **potentially significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

Based on the similarity of routes, the Co-Location Alternative is anticipated to result in impacts to geology and soils similar to the proposed project.

### Biological Resources

Similar to the proposed project, the Co-Location Alternative would be expected to result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. The proposed project could result in the following impacts to nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

## 6.0 ALTERNATIVES TO THE PROJECT

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- Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.
- Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.
- Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.
- Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.
- Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

Based on the similarity of the pipeline routes, impacts similar to these are anticipated to occur in association with implementation of the Co-Location Alternative as well.

Although difficult to estimate, the cumulative impacts of the proposed project are anticipated to result in significant impacts to aquatic resources. Cumulative impacts would be considered significant when considered in combination with the projects identified in Section 4.8 (Biological Resources) and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality).

- Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Similarly, cumulative impacts to aquatic resources would be anticipated to be significant for the Co-Location Alternative. This issue is addressed through broad state and federal programs and no specific mitigation is proposed. Cumulative impacts relative to aquatic resources for the Co-Location Alternative are therefore are considered significant and unavoidable.

**Historic and Cultural Resources**

The Co-Location Alternative would result in impacts to cultural and historic resources similar to those of the proposed project. The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact would be anticipated to occur in association with implementation of the Co-Location Alternative.

**Public Services and Utilities**

The Co-Location Alternative would result in impacts to public services and utilities similar to those of the proposed project. The following impacts were identified for the proposed project relative to damage to existing infrastructure and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact** and increased demand for electricity associated with expansion of facilities

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The proposed project would result in impacts similar to those of the proposed project. Therefore, impacts would be significant relative to public services and utilities for both the Co-Location Alternative and the proposed project. However, neither the Co-Location Alternative nor the proposed project would impact landfill capacity.

**Comparison Summary for the Co-Location Alternative and the Proposed Project**

The Co-Location Alternative would result in similar impacts to the Proposed Project relative to land use, human health/risk of upset, traffic and circulation, noise, air quality, geology and soils, biological resources, historic and cultural resources, and public services and utilities.

The No Project Alternative would result in more intense impacts than the proposed project relative to surface hydrology, groundwater and water quality.

## 6.0 ALTERNATIVES TO THE PROJECT

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### DOUGHERTY CUT ALTERNATIVE

#### **Description of Alternative**

This diffuser alternative would involve construction of a new pipeline to convey treated effluent to a diffuser located at Dougherty Cut. The new pipeline would be constructed from the north end of the WWTP along Arbor Avenue east to MacArthur Drive, then north on MacArthur Drive to Delta Avenue. From this point, the pipeline would align west through farmland, cross Old River then align north to the outfall location at Dougherty Cut. This alternative was considered based on its level of dilution.

#### **Comparative Analysis - Dougherty Cut Alternative and the Proposed Project**

##### Land Use

The Dougherty Cut Alternative would result in the same land use impacts as the proposed project. New infrastructure would be located on the existing WWTP site and follow a portion of the same pipeline route as the proposed project. As a result, the Dougherty Cut Alternative would also cause temporary land use conflicts in association with construction. However, because the Dougherty Cut Alternative requires a longer pipeline than the proposed project, land use disturbances would be more extensive than for the proposed project. In either case, because these impacts are temporary, they are considered less than significant.

##### Human Health/Risk of Upset

The Dougherty Cut Alternative would result in similar impacts to human health/risk of upset as the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be less than significant for both the Dougherty Cut Alternative and the proposed project.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Dougherty Cut Alternative.

### Traffic and Circulation

The Dougherty Cut Alternative would result in a slight increase in vehicle trips to the WWTP (e.g. employees, chemical deliveries, sludge removal). In addition, traffic and access on area roadways (i.e. Arbor Avenue, MacArthur Drive) would be disrupted in association with construction of the new outfall pipeline. The following impacts was identified for the proposed project relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

The Dougherty Cut Alternative is anticipated to result in a similar impact to access.

Both the Dougherty Cut Alternative and the proposed project would result in temporary increases in traffic associated with construction of the expansion. Similarly, the Dougherty Cut Alternative and the proposed project would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from these increases are considered less than significant. Therefore, the Dougherty Cut Alternative would result in impacts to traffic that are similar to those of the proposed project.

### Noise

In the short-term, construction noise would occur on project area roadways potentially disturbing the few homes in the area. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

Therefore, the Dougherty Cut Alternative would result in noise impacts similar to those of the proposed project. Once in operation, the expanded WWTP would result in less than significant increases in noise levels for the proposed project as well as the Dougherty Cut Alternative.

### Air Quality

The Dougherty Cut Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant impact**.

## 6.0 ALTERNATIVES TO THE PROJECT

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Because the Dougherty Cut Alternative includes a longer outfall pipeline than the proposed project, construction air quality impacts would most likely be more intense for the Dougherty Cut Alternative. In terms of operational impacts (emissions, odor, etc.), both the Dougherty Cut Alternative and the proposed project would have less than significant impacts on air quality.

### Surface Hydrology, Groundwater and Water Quality

Both the proposed project and the Dougherty Cut Alternative include the same level of treatment prior to discharge. Therefore, the effluent discharged to Old River would have exactly the same quality. The depth (i.e. 17 to 22 feet deep during high tide) and width (400 yards) of Old River at the proposed Dougherty Cut Alternative outfall are sufficient to provide good dilution. Impacts resulting from ammonia, trace metals, pathogens, increased discharge of tertiary effluent, treated effluent on dissolved oxygen, total dissolved solids are considered less than significant for the proposed project. Accordingly, they would be similar for the Dougherty Cut Alternative. In addition, impacts of the proposed discharge on TOC, pathogens, and trace metals are considered to be less than significant for both the proposed project and the Dougherty Cut Alternative.

The following impacts were identified for the proposed project:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant impact**.

**Impact 4.6.2** Construction of the project could result in temporary impacts to water quality. This would be a **potentially significant impact**.

A similar impact to temperature and construction is anticipated to occur in association with implementation of the Dougherty Cut Alternative.

Short-term and long-term impacts to water quality were determined to be less than significant for the proposed project. Similarly, these impacts would be less than significant for the Dougherty Cut Alternative as well.

Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project as identified in the following impact:

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Similarly, cumulative water quality impacts are anticipated to be significant for the Dougherty Cut Alternative.

### Geology and Soils

The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a potentially **significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a potentially **significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

The Dougherty Cut Alternative would result in more intense impacts than those of the proposed project in terms of soils. The banks and the riverbed of Old River are highly unstable at the outfall location proposed for this alternative. Scouring is occurring on one bank and depositing is taking place on the opposite bank. This condition could result in undercutting and/or burying at this location. Therefore, from an engineering perspective, installation and maintenance of the Dougherty Cut Alternative would be more complicated than for the proposed project. Seismic impacts would be similar for both the proposed project and the Dougherty Cut Alternative.

### Biological Resources

The proposed project would result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. As the Dougherty Cut Alternative is longer than the proposed project, the extent of impacts may be more wide-spread than for the proposed project. However, these impacts would still be considered less than significant.

The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

## 6.0 ALTERNATIVES TO THE PROJECT

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- Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.
- Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.
- Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.
- Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

Again, because the Dougherty Cut Alternative is longer than the proposed project and would require crossing farmland and Old River, the impacts may be more intense than the proposed project.

Although difficult to estimate, the cumulative impacts of the proposed project are anticipated to result in significant impacts to aquatic resources. In addition, cumulative impacts would be considered significant when considered in combination with the projects identified in Section 4.8 (Biological Resources) and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality).

- Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Similarly, cumulative impacts to aquatic resources would be anticipated to be significant for the Dougherty Cut Alternative. This issue is addressed through broad state and federal programs and no specific mitigation is proposed. Cumulative impacts relative to aquatic resources for Dougherty Cut Alternative are therefore are considered significant and unavoidable.

### Historic and Cultural Resources

The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact to cultural and historic resources would be anticipated in association with implementation of the Dougherty Cut Alternative.

**Public Services and Utilities**

The following impacts were identified for the proposed project relative to damage to existing infrastructure and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**.

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The Dougherty Cut Alternative would result in impacts similar to those of the proposed project. Therefore, impacts would be significant relative to public services and utilities for both the Dougherty Cut Alternative and the proposed project. However, neither the Dougherty Cut Alternative nor the proposed project would impact landfill capacity.

**Comparison Summary for the Dougherty Cut Alternative and the Proposed Project**

The Dougherty Cut Alternative would result in impacts similar to the proposed project with regard to the following issue areas: land use, human health/risk of upset, traffic and circulation, noise, surface hydrology, groundwater and water quality, geology and soils, historic and cultural resources, and public services and utilities.

The Dougherty Cut Alternative would result in more intense impacts than the proposed project relative to air quality and biological resources.

**OLD RIVER SOUTH ALTERNATIVE**

**Description of Alternative**

This diffuser alternative includes construction of a new outfall diffuser from the north end of the WWTP extending along Arbor Avenue east to MacArthur Drive. The pipeline would align north on MacArthur Drive to Whitehall Road. At Whitehall Road, the pipeline would extend west,

## 6.0 ALTERNATIVES TO THE PROJECT

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cross Tom Paine Slough and continue west through farmland to the outfall location on Old River. This alternative was considered based on level of dilution during wet weather flow.

### **Comparative Analysis – Old River South Alternative and the Proposed Project**

#### **Land Use**

The Old River South Alternative would result in the same land use impacts as the proposed project. The new infrastructure would be located on the existing WWTP site and follow a portion of the same outfall pipeline alignment as the proposed project (Arbor Avenue and MacArthur Drive). Similar to the proposed project, temporary land use conflicts could occur in association with construction in roadway right-of-way and farmland. These impacts would be temporary and would be considered less than significant for both the proposed project and the Old River South Alternative.

#### **Human Health/Risk of Upset**

The Old River South Alternative would result in human health/risk of upset impacts similar to the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be less than significant for both the proposed project and the Old River South Alternative.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Old River South Alternative.

#### **Traffic and Circulation**

The Old River South Alternative would result in a slight increase in vehicle trips to the WWTP (e.g. employees, chemical deliveries, sludge removal). In addition, traffic and access on area roadways (Arbor Avenue, MacArthur Drive and Whitehall Road) would be disrupted in association with construction of the new outfall pipeline. The following impact was identified for the proposed project relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

The Old River South Alternative is anticipated to result in a similar impact to access. Both the Old River South Alternative and the proposed project would result in temporary increases in traffic associated with construction of the expansion. Similarly, the Old River South Alternative and the proposed project would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from these increases are considered less than significant. Therefore, the Old River South Alternative would result in impacts to traffic that are similar to those of the proposed project.

### Noise

In the short-term, construction noise would occur on Arbor Avenue, MacArthur Drive and Whitehall Road potentially disturbing the few homes in the area. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

The Old River South Alternative would also result in construction noise impacts similar to those of the proposed project. Once in operation, the expanded WWTP would result in less than significant increases in noise levels for the proposed project as well as the Old River South Alternative.

### Air Quality

The Old River South Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant** impact.

Because the Old River South Alternative has a shorter outfall pipeline than the proposed project, air quality impacts resulting from construction would most likely be less intense than those of the proposed project. In terms of operational impacts (emissions, odor, etc.), both the Old River South Alternative and the proposed project would have less than significant impacts on air quality.

### Surface Hydrology, Groundwater and Water Quality

Both the proposed project and the Old River South Alternative include the same level of treatment prior to discharge. Therefore, the effluent discharged to Old River would have exactly

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the same quality. The water depth (i.e. 8.5 to 9-feet deep during high tide) at the Old River South Alternative outfall is very shallow and would provide some dilution only during wet weather flow. As a result, surface hydrology impacts at the Old River South Alternative would be more intense than for the proposed project.

The following impacts to water identified for the proposed project:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

**Impact 4.6.2** Construction of the project could result in temporary impacts to water quality. This would be a **potentially significant** impact.

More intense impacts to temperature and water quality are anticipated to occur in association with implementation of the Old River South Alternative as this alternative shallower than the proposed project. The depth would provide some dilution only during wet weather flow.

Short-term and long-term impacts to water quality were determined to be less than significant for the proposed project. However, based on poor dilution at this location, short-term and long-term impacts are anticipated to be more intense at the Old River South Alternative than for the proposed project.

Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project as identified in the following impact:

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Similarly, cumulative water quality impacts are anticipated to be significant, and potentially more intense for the Old River South Alternative than for the proposed project based on poor dilution during non-wet weather flows.

### Geology and Soils

The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a potentially **significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

The Old River South Alternative and the proposed project would be subject to similar seismic impacts in the event of an earthquake. In addition, the Old River South Alternative would result in similar impacts in terms of liquefaction and expansive soils. Because the Old River South Alternative outfall pipeline is approximately half the length of the proposed project's outfall pipeline, it would result in less intense impacts in terms of soil disturbance and potential for erosion than the proposed project.

### **Biological Resources**

The proposed project would result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. As the Old River South Alternative is shorter than the proposed pipeline, the extent of these impacts may be less extensive than the proposed project and therefore considered less than significant. The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

**Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.

**Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.

**Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant impact**.

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**Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

As previously stated, the Old River South Alternative includes a pipeline that is approximately half as long as the pipeline of the proposed project. Therefore, although impacts to biological resources would be similar to those of the proposed project, the actual amount of biological resources disturbed during construction for this alternative would be less intense than for the proposed project.

Although difficult to estimate, the cumulative impacts of the proposed project are anticipated to result in significant impacts to aquatic resources. This is based on a number of factors including shallow depth/poor dilution at the Old River South Alternative. In addition, cumulative impacts would be considered significant when considered in combination with the projects identified in Section 4.8 (Biological Resources) and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality).

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Similarly, cumulative impacts to aquatic resources would be anticipated to be significant for the Old River South Alternative. This issue is addressed through broad state and federal programs and no specific mitigation is proposed. Cumulative impacts relative to aquatic resources for the Old River South Alternative are therefore considered significant and unavoidable.

### Historic and Cultural Resources

The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact to historic and cultural resources would be anticipated in association with implementation of the Old River South Alternative.

### **Public Services and Utilities**

The Old River South Alternative would result in impacts to public services and utilities similar to those of the proposed project. The following impacts were identified for the proposed project relative to damage to existing infrastructure and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**.

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The Old River South Alternative would result in impacts similar to those of the proposed project. Therefore, impacts would be significant relative to public services and utilities for both the Old River South Alternative and the proposed project. However, neither the Old River South Alternative nor the proposed project would impact landfill capacity.

### **Comparison Summary for the Old River South Alternative and the proposed project**

The Old River South Alternative would result in less intense impacts than proposed project with regard to the following issue areas: geology and soils, and biological resources.

The Old River South Alternative would result in impacts similar to the proposed project with regard to the following issue areas: land use, human health/risk of upset, traffic and circulation, noise, air quality, geology and soils, biological resources, historic and cultural resources, and public services and utilities.

The Old River South Alternative would result in more intense impacts than the proposed project relative to surface hydrology, groundwater and water quality.

### **SUGAR CUT ALTERNATIVE**

#### **Description of Alternative**

The Sugar Cut Alternative proposes a new pipeline and outfall from the WWTP to an outfall location at Sugar Cut. The pipeline would be constructed from the north end of the WWTP site, follow Arbor Avenue east to MacArthur Drive, then north on MacArthur Drive. From this point it would cross farmland and Tom Paine Slough before terminating at Sugar Cut. This alternative was considered based on its proximity to the WWTP and the benefits associated with constructing a shorter pipeline.

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### Comparative Analysis – Sugar Cut Alternative and the proposed project

#### Land Use

The Sugar Cut Alternative would result in land use impacts similar to those of the proposed project. The new infrastructure would be located on the existing WWTP site and follow a portion of the same outfall pipeline alignment as the proposed project. Similar to the proposed project, temporary land use conflicts could occur in association with construction in roadway right-of-way and farmland. However, the length of the pipeline for the Sugar Cut Alternative is shorter than the pipeline of the proposed project. Construction impacts to land use are temporary and are considered less than significant for both the proposed project and the Sugar Cut Alternative.

#### Human Health/Risk of Upset

The Sugar Cut Alternative would result in human health/risk of upset impacts similar to the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be less than significant for both the Sugar Cut Alternative and the proposed project.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Sugar Cut Alternative.

#### Traffic and Circulation

Both the Sugar Cut Alternative and the proposed project would result in temporary increases in traffic associated with construction of the expansion on area roadways (Arbor Avenue, MacArthur Drive and Whitehall Road). Similarly, the Sugar Cut Alternative and the proposed project would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from the aforementioned increases are considered less than significant. The following impact was identified for the proposed project relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

The Sugar Cut Alternative is anticipated to result in a similar impact to access. Both the proposed project and the Sugar Cut Alternative would result in temporary increases in traffic associated with construction of the expansion. Similarly, the proposed project and the Sugar Cut Alternative would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from these increases are considered less than significant. Therefore, the Sugar Cut Alternative would result in impacts to traffic that are similar to those of the proposed project.

### Noise

In the short-term, construction noise would occur on Arbor Avenue, MacArthur Drive and Whitehall Road potentially disturbing the few homes in the area. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

Therefore, the Sugar Cut Alternative would result in noise impacts similar to those of the proposed project. Once in operation, the expanded WWTP would result in less than significant increases in noise levels for the proposed project as well as the Sugar Cut Alternative.

### Air Quality

The Sugar Cut Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant** impact.

Because the Sugar Cut Alternative has an outfall pipeline less than half the length of the proposed project, construction air quality impacts would most likely occur for a shorter duration thereby resulting in less intense air quality impacts than those of the proposed project. In terms of operational impacts (emissions, odor, etc.), both the Old River South Alternative and the proposed project would have **less than significant** impacts on air quality.

### Surface Hydrology, Groundwater and Water Quality

Both the proposed project and the Sugar Cut Alternative include the same level of treatment prior to discharge. Therefore, the effluent discharged to Old River would have exactly the same quality. The outfall at Sugar Cut has poor dilution because this waterway is a dead-end slough.

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Without proper dilution, impacts identified relative to water quality would be exacerbated. As a result, surface hydrology impacts at the Sugar Cut Alternative would be more intense than for the proposed project.

The following impacts to water were identified for the proposed project:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

**Impact 4.6.2** Construction of the project could result in temporary impacts to water quality. This would be a **potentially significant** impact.

Similar, but potentially more intense impacts to temperature and water quality are anticipated to occur in association with implementation of the Sugar Cut Alternative due to poor dilution.

Short-term and long-term impacts to water quality were determined to be less than significant for the proposed project. However, based on poor dilution at this location, short-term and long-term impacts are anticipated to be more intense at the Sugar Cut Alternative than for the proposed project.

Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project as identified in the following impact:

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Similarly, cumulative water quality impacts are anticipated to be significant, and potentially more intense for the Sugar Cut Alternative than for the proposed project based on poor dilution at Sugar Cut.

### Geology and Soils

The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant** impact.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a **potentially significant** impact.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant** impact.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant** impact.

The proposed project and the Sugar Cut Alternative would be subject to similar seismic impacts in the event of an earthquake. In addition, the Sugar Cut Alternative would result in similar impacts in terms of liquefaction and expansive soils to the proposed project. Because the Sugar Cut Alternative outfall pipeline is approximately half the length of the proposed project's outfall pipeline, it would result in less intense impacts in terms of soil disturbance and potential for erosion than the proposed project.

### **Biological Resources**

The Sugar Cut Alternative would result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

**Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.

**Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.

**Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.

**Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are

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regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

The Sugar Cut Alternative includes a pipeline that is approximately half as long as the pipeline of the proposed project. Therefore, although impacts to biological resources would be less intense than those of the proposed project, the actual amount of biological resources disturbed during construction for this alternative would be less extensive than for the proposed project.

Although difficult to estimate, the cumulative impacts of the proposed project are anticipated to result in significant impacts to aquatic resources. This is based on a number of factors including poor dilution at the Sugar Cut Alternative. In addition, cumulative impacts would be considered significant when considered in combination with the projects identified in Section 4.8 (Biological Resources) and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality).

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Similarly, cumulative impacts to aquatic resources would be anticipated to be significant for the Sugar Cut Alternative. This issue is addressed through broad state and federal programs and no specific mitigation is proposed. Cumulative impacts relative to aquatic resources for the Sugar Cut Alternative are therefore considered significant and unavoidable.

### Historic and Cultural Resources

The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact to historic and cultural resources would be anticipated in association with implementation of the Sugar Cut Alternative.

**Public Services and Utilities**

The Sugar Cut Alternative would result in impacts to public services and utilities similar to those of the proposed project. The following impacts were identified for the proposed project relative to damage to existing infrastructure and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**.

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The Sugar Cut Alternative would result in impacts similar to those of the proposed project. Therefore, impacts would be significant relative to public services and utilities for both the Sugar Cut Alternative and the proposed project. However, neither the Sugar Cut Alternative nor the proposed project would impact landfill capacity.

**Comparison Summary for the Sugar Cut Alternative and the Proposed Project**

The Sugar Cut Alternative would result in less intense impacts than proposed project with regard to the following issue areas: geology and soils, and biological resources.

The Sugar Cut Alternative would result in impacts similar to the proposed project with regard to the following issue areas: land use, human health/risk of upset, traffic and circulation, noise, air quality, geology and soils, biological resources, historic and cultural resources, and public services and utilities.

The Sugar Cut Alternative would result in more intense impacts than the proposed project relative to surface hydrology, groundwater and water quality.

**TOM PAINE SLOUGH ALTERNATIVE**

**Description of Alternative**

The Tom Paine Slough Alternative proposes a new pipeline and outfall from the WWTP. The pipeline would be constructed from the north end of the WWTP site, follow Arbor Avenue east to MacArthur Drive, then north on MacArthur Drive. From this point it would cross farmland before terminating at Tom Paine Slough. This alternative was considered based on its proximity to the WWTP and the potential benefits associated with construction a shorter pipeline.

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### Comparative Analysis – Tom Paine Slough Alternative and the proposed project

#### Land Use

The Tom Paine Slough Alternative would result in land use impacts similar to those of the proposed project. The new infrastructure would be located on the existing WWTP site and follow a portion of the same outfall pipeline alignment as the proposed project. Similar to the proposed project, temporary land use conflicts could occur in association with construction in roadway right-of-way and farmland. However, the length of the pipeline for the Tom Paine Slough Alternative is shorter than the pipeline of the proposed project. Construction impacts to land use are temporary and are considered less than significant for both the Tom Paine Slough Alternative and the proposed project.

#### Human Health/Risk of Upset

The Tom Paine Slough Alternative would result in human health/risk of upset impacts similar to the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be less than significant for both the Tom Paine Slough Alternative and the proposed project.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Tom Paine Slough Alternative.

#### Traffic and Circulation

Both the Tom Paine Slough Alternative and the proposed project would result in temporary increases in traffic associated with construction of the expansion on area roadways (Arbor Avenue and MacArthur Drive). Similarly, the Tom Paine Slough Alternative and the proposed project would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from the aforementioned increases are considered less than significant. The following impact was identified for the proposed project relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

The Tom Paine Slough Alternative is anticipated to result in a similar impact to access. Both the proposed project and the Tom Paine Slough Alternative would result in temporary increases in traffic associated with construction of the expansion. Similarly, the proposed project and the Tom Paine Slough Alternative would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from these increases are considered less than significant. Therefore, the Tom Paine Slough Alternative would result in impacts to traffic that are similar to those of the proposed project.

### Noise

In the short-term, construction noise would occur on Arbor Avenue and MacArthur Drive potentially disturbing the few homes in the area. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

Therefore, the Tom Paine Slough Alternative would result in noise impacts similar to those of the proposed project. Once in operation, the expanded WWTP would result in less than significant increases in noise levels for the proposed project as well as the Tom Paine Slough Alternative.

### Air Quality

The Tom Paine Slough Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant impact**.

Because the Tom Paine Slough Alternative has an outfall pipeline less than half the length of the proposed project, air quality impacts resulting from construction would most likely be less intense than those of the proposed project. In terms of operational impacts (emissions, odor, etc.), both the Old River South Alternative and the proposed project would have **less than significant** impacts on air quality.

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### Surface Hydrology, Groundwater and Water Quality

Both the proposed project and the Tom Paine Slough Alternative include the same level of treatment prior to discharge. Therefore, the effluent discharged to Old River would have exactly the same quality. The water depth at the Tom Paine Slough Alternative outfall is very shallow and would provide some dilution only during wet weather flow. As a result, surface hydrology impacts at the Tom Paine Slough Alternative would be more intense than for the proposed project.

The following impacts to water were identified for the proposed project:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

**Impact 4.6.2** Construction of the project could result in temporary impacts to water quality. This would be a **potentially significant** impact.

Similar impacts to temperature and water quality are anticipated to occur in association with implementation of the Tom Paine Slough Alternative.

Short-term and long-term impacts to water quality were determined to be less than significant for the proposed project. However, based on poor dilution at this location, short-term and long-term impacts are anticipated to be more intense at the Tom Paine Slough Alternative than for the proposed project.

Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project as identified in the following impact:

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Similarly, cumulative water quality impacts are anticipated to be significant, and potentially more intense for the Tom Paine Alternative than for the proposed project based on insufficient dilution at Tom Paine Slough.

### Geology and Soils

The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a potentially **significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a potentially **significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

The proposed project and the Tom Paine Slough Alternative would be subject to similar seismic impacts in the event of an earthquake. In addition, the Tom Paine Slough Alternative would result liquefaction and expansive soils impacts similar to the proposed project. However, the Tom Paine Slough Alternative would result in less intense impacts in terms of soil disturbance and potential for erosion because the Tom Paine Slough Alternative outfall pipeline is approximately half the length of the proposed project's outfall pipeline.

### **Biological Resources**

The Tom Paine Slough Alternative would result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

**Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.

**Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.

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**Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.

**Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

The Tom Paine Slough Alternative includes a pipeline that is approximately half as long as the pipeline of the proposed project. Therefore, although impacts to biological resources would be less intense than those of the proposed project, the actual amount of biological resources disturbed during construction for this alternative would be less extensive than for the proposed project.

Although difficult to estimate, the cumulative impacts of the proposed project are anticipated to result in significant impacts to aquatic resources. This is based on a number of factors including poor dilution at Tom Paine Slough. In addition, cumulative impacts would be considered significant when considered in combination with the projects identified in Section 4.8 (Biological Resources) and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality).

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Similarly, cumulative impacts to aquatic resources would be anticipated to be significant for the Tom Paine Slough Alternative. This issue is addressed through broad state and federal programs and no specific mitigation is proposed. Cumulative impacts relative to aquatic resources for the Tom Paine Slough Alternative are therefore considered significant and unavoidable.

### **Historic and Cultural Resources**

The Tom Paine Slough Alternative would result in impacts to cultural and historic resources similar to those of the proposed project. The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact would be anticipated in association with implementation of the Tom Paine Slough Alternative.

**Public Services and Utilities**

The Tom Paine Slough Alternative would result in impacts to public services and utilities similar to those of the proposed project. The following impacts were identified for the proposed project relative to damage to existing infrastructure and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**.

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The Tom Paine Slough Alternative would result in impacts similar to those of the proposed project. Therefore, impacts would be significant relative to public services and utilities for both the Tom Paine Slough Alternative and the proposed project. However, neither the Tom Paine Slough Alternative nor the proposed project would impact landfill capacity.

**Comparison Summary for the Tom Paine Slough Alternative and the Proposed Project**

The Tom Paine Slough Alternative would result in impacts less intense than proposed project with regard to the following issue areas: geology and soils, and biological resources.

The Tom Paine Slough Alternative would result in impacts similar to the proposed project with regard to the following issue areas: land use, human health/risk of upset, traffic and circulation, noise, air quality, geology and soils, biological resources, historic and cultural resources, and public services and utilities.

The Tom Paine Slough Alternative would result in more intense impacts than the proposed project relative to surface hydrology, groundwater and water quality.

**MAXIMUM SUMMERTIME REUSE OF RECYCLED WATER (NO SEASONAL STORAGE) ALTERNATIVE**

**Description of Alternative**

The Maximum Reuse of Recycled Water (no seasonal storage) Alternative would include fully sized discharge facilities for wintertime peak flows to eliminate discharge in all but the wettest days and months of the year. This alternative would reduce the volume of treated wastewater discharged by about 1,920 million gallons per year – (5,800 acre-feet/year – under future

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conditions, a total of 6,900 million gallons per year processed). This alternative was considered as a means of reducing discharges to Old River.

### **Comparative Analysis - Maximum Summertime Reuse of Recycled Water (No Seasonal Storage) Alternative**

#### **Land Use**

As no customers for recycled water are specifically identified at this time, land use impacts are difficult to quantify. However, because this alternative would require distribution infrastructure to each individual user, recycled pipelines would be longer for the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative than under the proposed project. In addition, a new outfall would still be necessary to accommodate discharge when flows are not fully reclaimed (i.e. in the winter, spring and fall months). Construction of these facilities could result in temporary disruptions of traffic, increased noise and dust. These impacts could be nuisance to surrounding land uses, especially residential uses. Because these impacts are temporary and end when construction is completed, they are typically considered less than significant. However, they would be more extensive for this alternative than the proposed project and could potentially disrupt more residents. Therefore, this alternative would result in more intense impacts to land use than the proposed project.

#### **Human Health/Risk of Upset**

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in human health/risk of upset impacts similar to the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be less than significant for both the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative and the proposed project.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative as a new outfall and extensive recycled water distribution would have to be constructed.

### Traffic and Circulation

Similar to the proposed project, the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in a slight increase in vehicle trips to the WWTP (e.g. employees, chemical deliveries, sludge removal). In addition, traffic and access on area roadways would be disrupted in association with construction of the new outfall pipeline and recycled water infrastructure. The following impacts were identified for the proposed project relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative is anticipated to result in more extensive impacts to access based on the extent of infrastructure that would be required to distribute recycled water to customers.

Both the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative and the proposed project would result in temporary increases in traffic associated with construction of the expansion and a new outfall. In addition, this alternative could disrupt traffic on roadways subject to high traffic volumes (yet to be identified) during construction of recycled water distribution infrastructure. This would result in more intense impacts to traffic during construction than the proposed project. Both the proposed project and the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from these operation-related traffic increases are considered less than significant. Therefore, the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in more intense impacts to traffic than the proposed project.

### Noise

In the short-term, construction noise associated with the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would occur on project area roadways potentially disturbing the few homes in the area of the expansion and outfall route. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would also result in construction noise impacts. However, because the Maximum Summertime Reuse

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of Recycled Water (no seasonal storage) Alternative would include construction of extensive recycled water distribution infrastructure, construction noise would occur for a longer duration and over a larger area than the proposed project. Once in operation, the expanded WWTP would result in less than significant increases in noise levels for the proposed project. Pumps may be used in association with the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative to distribute recycled water. This could result in more intense noise impacts than the proposed project.

### Air Quality

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant** impact.

Because the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative includes construction of an extensive recycled water distribution network, construction air quality impacts would most likely be more intense for this alternative. In terms of operational impacts (emissions, odor, etc.), both the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative and the proposed project would have less than significant impacts on air quality relative to the WWTP expansion. However, pumps would be required to distribute recycled water. Therefore, operational impact of this alternative may be more intense than the proposed project.

### Surface Hydrology, Groundwater and Water Quality

Both the proposed project and the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative include the same level of treatment prior to discharge. Therefore, the effluent discharged to Old River would have exactly the same quality for either the proposed project or this alternative. The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would free-up surface water and groundwater supplies uses for other than irrigation, including conservation or environmental enhancement. While discharge reduction would have some water quality benefits in the summer, the discharge to Old River would continue in the fall, winter and spring months. Overall, the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in less intense impacts to water quality than the proposed project because it would result in reduced discharges to Old River than the proposed project.

Impacts resulting from ammonia, trace metals, pathogens, increased discharge of tertiary effluent, treated effluent on dissolved oxygen, total dissolved solids are considered less than significant for the proposed project. Accordingly, they would be similar for the Maximum

Summertime Reuse of Recycled Water (no seasonal storage) Alternative. In addition, impacts of the proposed discharge on TOC, pathogens, and trace metals are considered to be less than significant for both the proposed project and the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative. Moreover, water quality would be improved during the summer months under this alternative as flows would be recycled rather than discharged.

The following impact to water temperature was identified for the proposed project:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

This impact would be reduced through implementation of the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative as the quantity of effluent discharged to Old River would be reduced during the summer months.

**Impact 4.6.2** Construction of the project could result in temporary impacts to water quality. This would be a **potentially significant** impact.

Short-term and long-term impacts to water quality were determined to be less than significant for the proposed project. These impacts would be less intense for the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative because less effluent would be discharged to Old River.

Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project as identified in the following impact:

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Because the amount of effluent discharged would be reduced under the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative, cumulative impacts would likely be less intense than for the proposed project.

### Geology and Soils

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would require construction of a new outfall as well recycled water distribution infrastructure. While the actual route of this infrastructure has not yet been determined, it could be subject to a variety of geologic and soil impacts. The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

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**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a potentially **significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a potentially **significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

As the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative requires construction of extensive infrastructure, impacts would be considered more intense than under the proposed project

### Biological Resources

The proposed project would result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. As the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would require extensive recycled water infrastructure, the extent of impacts to biological resources could be more intense than for the proposed project though this cannot be determined until an actual route for this infrastructure is identified.

The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

**Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.

**Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.

**Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.

**Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

Again, because the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative requires more extensive infrastructure than the proposed project, these impacts may be more intense than the proposed project.

Although difficult to estimate, the cumulative impacts of the proposed project in combination with the projects discussed in Section 4.8 (Biological Resources) and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality) are anticipated to result in significant impacts to aquatic resources. However, impacts to fish would most likely be less intense than under the proposed project because discharge volumes would be less under the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative.

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Similarly, cumulative impacts to aquatic resources would be anticipated to be significant, though less intense, for the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative compared to the proposed project. This issue is addressed through broad state and federal programs and no specific mitigation is proposed. Cumulative impacts relative to aquatic resources for the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative are therefore considered significant and unavoidable.

### **Historic and Cultural Resources**

The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

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A similar impact to cultural and historic resources would be anticipated in association with implementation of the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative.

### Public Services and Utilities

The following impacts were identified for the proposed project relative to damage to existing infrastructure, increased load on existing electrical facilities, increased power usage, and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**.

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in more intense impacts than those of the proposed project relative to potential to damage existing infrastructure because extensive distribution infrastructure would be necessary to distribute recycled water.

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in more intense impacts than those of the proposed project relative to increased demand for electricity and increased loads on existing electrical infrastructure due new treatment processes, increased flows and the added energy demand associated with operating pumps to distribute recycled water to customers.

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in impacts similar to the proposed project relative to special fire protection services. Neither this alternative, nor the proposed project would impact landfill capacity.

### **Comparison Summary for the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative and the Proposed Project**

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in less intense impacts than the proposed project in the following issue areas: surface hydrology, groundwater and water quality.

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in similar impacts to the proposed project in the following issue areas: human health/risk of upset, and historic and cultural resources.

The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would result in more intense impacts than the proposed project relative to the following issue areas: land use, traffic and circulation, noise, air quality, geology and soils, biological resources, and public services and utilities.

### MAXIMUM REUSE OF RECYCLED WATER (WITH SEASONAL STORAGE) ALTERNATIVE

#### **Description of Alternative**

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would be sized to accommodate 100 percent of the annual volume of recycled water (i.e. 4,980 million gallons [mg] in multiple ponds occupying more than 500 acres) for wintertime peak flows. This would eliminate effluent discharge on all but the wettest days and months of the year. Further, whatever is not used during the summer, would be stored during the remainder of the year for reuse in the next summer season. The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative proposes piping recycled wastewater to customers for reclamation and reuse purposes. This alternative was considered based on the benefits of reduced effluent discharge in all seasons of the year; elimination of additional river discharge facilities; and freeing-up surface and groundwater resources for conservation and environmental enhancement.

#### **Comparative Analysis - Maximum Reuse of Recycled Water (with seasonal storage) Alternative and Proposed Project**

##### **Land Use**

As no recycled water customers are specifically identified at this time, land use impacts are difficult to quantify. However, because this alternative would require distribution infrastructure to each individual user, recycled pipelines would be longer for the Maximum Reuse of Recycled Water (with seasonal storage) Alternative than under the proposed project. In addition, a new storage facilities capable of accommodating 4,980 million gallons (mg) of discharge flows would have to be constructed. Construction of these facilities could result in temporary disruptions of traffic, increased noise and dust. These impacts could be nuisance to surrounding land uses, especially residential uses. Because these impacts are temporary and end when construction is completed, they are typically considered less than significant. However, they would be more extensive for this alternative than the proposed project, primarily due to construction of the storage facilities. Therefore, this alternative would result in more intense impacts to land use than the proposed project.

##### **Human Health/Risk of Upset**

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in human health/risk of upset impacts similar to the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be less

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than significant for both the Maximum Reuse of Recycled Water (with seasonal storage) Alternative and the proposed project.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Maximum Reuse of Recycled Water (with seasonal storage) Alternative as over 500 acres of storage and extensive recycled water distribution infrastructure would have to be constructed.

### Traffic and Circulation

Similar to the proposed project, Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in a slight increase in vehicle trips to the WWTP (e.g. employees, chemical deliveries, sludge removal). In addition, traffic and access on area roadways would be disrupted in association with construction of the new outfall pipeline and recycled water infrastructure. The following impact was identified for the proposed project relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative is anticipated to result in more intense impacts to access based on the extent of infrastructure required to distribute recycled water to customers as well as the construction of storage facilities to accommodate 100 percent of discharge flows.

Both the Maximum Reuse of Recycled Water (with seasonal storage) Alternative and the proposed project would result in temporary increases in traffic associated with construction of the expansion. In addition, this alternative would disrupt traffic on area roadways (yet to be identified) during construction of recycled water distribution infrastructure and the storage facilities. Both the proposed project and the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries, and sludge removal. Because area roadways are not subject to high volumes of traffic, impacts resulting from these increases are considered less than significant. However, other roadways with higher traffic volumes may be impacted by construction of recycled water distribution infrastructure and the storage facilities. Therefore, the

Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts to traffic than the proposed project.

### Noise

In the short-term, construction noise associated with the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would occur on project area roadways potentially disturbing the few homes in the area of the expansion and outfall route. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would also result in construction noise impacts. However, because the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would include construction of extensive recycled water distribution infrastructure as well as storage facilities capable of accommodating 4,980 mg, construction noise would occur for a longer duration and over a larger area than the proposed project. Once in operation, the expanded WWTP would result in less than significant increases in noise levels for both Maximum Reuse of Recycled Water (with seasonal storage) Alternative and the proposed project. Pumps would be used in association with the Maximum Reuse of Recycled Water (with seasonal storage) Alternative to convey water to the storage facility and to distribute recycled water to customers. This would result in more intense operational noise impacts than the proposed project.

### Air Quality

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant** impact.

Because the Maximum Reuse of Recycled Water (with seasonal storage) Alternative includes construction of an extensive recycled water distribution network, construction air quality impacts would most likely be more intense for this alternative. In terms of operational impacts (emissions, odor, etc.), both the Maximum Reuse of Recycled Water (with seasonal storage) Alternative and the proposed project would have less than significant impacts on air quality relative to the WWTP expansion. However, pumps would be required to convey recycled water to the storage facilities and to customers. Therefore, operational air quality impact of this alternative may be more intense than the proposed project.

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### Surface Hydrology, Groundwater and Water Quality

Both the proposed project and the Maximum Reuse of Recycled Water (with seasonal storage) Alternative include the same level of treatment prior to discharge. Therefore, the effluent discharged to Old River would have exactly the same quality for either the proposed project or this alternative. The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would free-up surface water and groundwater supplies for uses other than irrigation, including conservation or environmental enhancement. The reduction of 100 percent of discharge (6,900 mg within the future capacity condition, or 21,000 acre-feet per year) would have less intense impacts on water quality than the proposed project. Overall, the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in less intense impacts to water quality than the proposed project because it would result in reduced discharges to Old River in comparison to the proposed project.

Impacts resulting from ammonia, trace metals, pathogens, increased discharge of tertiary effluent, treated effluent on dissolved oxygen, total dissolved solids are considered less than significant for the proposed project. This impact would be less intense under the Maximum Reuse of Recycled Water (with seasonal storage) Alternative as no discharge would occur (except in the case of excess flows during wet years). In addition, impacts of the proposed discharge on TOC, pathogens, and trace metals would be less intense for the Maximum Reuse of Recycled Water (with seasonal storage) Alternative than the proposed project.

The following impacts to water temperature and construction were identified for the proposed project:

- Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant impact**.
- Impact 4.6.2** Construction of the project could result in temporary impacts to water quality. This would be a **potentially significant impact**.

Temperature impacts would be avoided through implementation of the Maximum Reuse of Recycled Water (with seasonal storage) Alternative as zero discharge to Old River would occur (except in the case of excess flows during wet years which would exceed storage capacity). Construction impacts would also be avoided under this alternative as no additional discharge to Old River would occur (except on the wettest days). Therefore, the impacts of the Maximum Reuse of Recycled Water (with seasonal storage) Alternative relative to temperature and construction would be less intense than the proposed project.

Short-term and long-term impacts to water quality were determined to be less than significant for the proposed project. These impacts would be less intense for the Maximum Reuse of Recycled

Water (with seasonal storage) Alternative because zero discharge to Old River would occur. Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project as identified in the following impact:

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Cumulative water quality impacts are anticipated to be less intense for the Maximum Reuse of Recycled Water (with seasonal storage) Alternative than the proposed project as discharge to Old River would be avoided (except on the wettest days).

### Geology and Soils

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would require construction of new storage facilities covering over 500 acres. Each storage pond would be approximately 30 feet deep. In addition, extensive recycled water distribution infrastructure would also be constructed. While the neither the actual sites of the storage facilities or the route of the distribution infrastructure have been determined at this point, these facilities could be subject to a variety of geologic and soil impacts. The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a **potentially significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

As the Maximum Reuse of Recycled Water (with seasonal storage) Alternative requires construction of both storage facilities and recycled water distribution infrastructure, impacts would be considered more intense than under the proposed project

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### Biological Resources

The proposed project would result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. As the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would require both storage facilities and extensive recycled water infrastructure, the extent of impacts to biological resources could be more intense than for the proposed project although this cannot be fully determined until actual sites and routes for these facilities are identified.

The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

- Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.
- Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.
- Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.
- Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.
- Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

Again, because the Maximum Reuse of Recycled Water (with seasonal storage) Alternative requires over 500 acres of storage facilities and extensive distribution infrastructure, the impacts to biological resources would be more widespread and therefore potentially more intense than for the proposed project. However, as discharge to Old River would be avoided under the Maximum Reuse of Recycled Water (with seasonal storage) Alternative, impacts to fisheries would be less intense than for the proposed project.

Although difficult to estimate, the cumulative impacts of the proposed project in combination with the projects discussed in Section 4.8 (Biological Resources) and the projects discussed in

Section 4.6 (Surface Hydrology, Groundwater, and Water Quality) are anticipated to result in significant impacts to aquatic resources.

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Because the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would avoid discharge, cumulative impacts to aquatic resources would be anticipated to be less intense for this alternative relative to the proposed project.

### Historic and Cultural Resources

The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact to cultural and historic resources would be anticipated in association with implementation of the Maximum Reuse of Recycled Water (with seasonal storage) Alternative as considerable excavation would be required to construct the storage facilities and install the recycled water distribution system.

### Public Services and Utilities

The following impacts were identified for the proposed project relative to damage to existing infrastructure, increased load on existing electrical facilities, increased power usage, and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts than those of the proposed project relative to potential to damage existing infrastructure because extensive distribution infrastructure would be constructed to distribute recycled water. In addition, construction of 30-foot deep storage facilities could potentially affect infrastructure as well.

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The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts than those of the proposed project relative to increased demand for electricity due to the added energy demand associated with pumps to convey flows to storage and from storage to recycled water to customers.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts than those of the proposed project relative to increased loads on existing electrical infrastructure due new treatment processes and increased flows. In addition, increased energy demand would be associated with pumps necessary to convey flows to storage and to distribute recycled water to customers.

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant** impact.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in impacts similar to the proposed project relative to special fire protection services. Neither this alternative, nor the proposed project would impact landfill capacity.

### **Comparison Summary for the Maximum Summertime Reuse of Recycled Water (with seasonal storage) Alternative and the Proposed Project**

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in less intense impacts than the proposed project in the following issue areas: surface hydrology, groundwater and water quality.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in similar impacts to the proposed project in the following issue areas: human health/risk of upset, and historic and cultural resources.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts than the proposed project relative to the following issue areas: land use, traffic and circulation, noise, air quality, geology and soils, biological resources, and public services and utilities.

### **Comparison Between the Diffuser Alternatives and the Proposed Project**

**Table 6-2** provides a summary of the evaluation of the diffuser alternatives compared to the project as proposed.

**TABLE 6-2  
COMPARISON OF THE DIFFUSER ALTERNATIVES TO THE PROPOSED PROJECT**

Environmental Categories	Co-Location Alternative	Dougherty Cut Alternative	Old River South Alternative	Sugar Cut Alternative	Tom Paine Slough Alternative	Max Summer Reuse of Water	Max Reuse of Recycled Water
Land Use	S	S	S	S	S	M	M
Human Health/Risk of Upset	S	S	S	S	S	S	S
Traffic and Circulation	S	S	S	S	S	M	M
Noise	S	S	S	S	S	M	M
Air Quality	S	M	L	L	L	M	M
Surface Hydrology, Groundwater and Water Quality	S	W	W	W	W	L	L
Geology and Soils	S	M	L	L	L	M	M
Biological Resources	S	M	L	L	L	M	M
Historic and Cultural Resources	S	S	S	S	S	S	S
Public Services and Utilities	S	S	S	S	S	M	M

L = Less Intense than the Project in terms of environmental impact.

S = Similar to the Project in terms of environmental impact.

M = More Intense than the Project in terms of environmental impact.

#### PEAK HOUR DRY WEATHER FILTRATION FOR TERTIARY TREATMENT (23 MGD)

##### Description of Alternative

##### The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative provides filtration for peak hour dry-weather flow. During periods of peak-hour wet weather flow, this alternative would provide partial filtration (i.e. it would accommodate only 23 mgd instead of 30 mgd) during wet weather events. This alternative was considered based on improved effluent quality and cost.

##### Comparative Analysis - Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the Proposed Project

##### Land Use

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in land use impacts similar to the proposed project. Although the new infrastructure would be located on the existing WWTP site and follow the same pipeline route, temporary land use conflicts could occur in association with construction. These impacts would be temporary and are considered less than significant for both the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the proposed project.

## 6.0 ALTERNATIVES TO THE PROJECT

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### Human Health/Risk of Upset

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in human health/risk of upset impacts similar to the proposed project. Impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be less than significant for both the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the proposed project.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative.

### Traffic and Circulation

Both the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the proposed project would result in temporary increases in traffic associated with construction of the WWTP expansion. Similarly, the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the proposed project would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries and sludge removal. Because area roadways (e.g. MacArthur Drive, Delta Avenue) are not subject to high volumes of traffic, impacts resulting from the aforementioned increases are considered less than significant.

The proposed project could result in the following impact relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

A similar impact could result in association with implementation of the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative. In addition, traffic on area roadways would be disrupted in association with construction of the new outfall pipeline for both the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the proposed project. Therefore, the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in traffic impacts similar to those of the proposed project

### Noise

In the short-term, construction noise associated with the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would occur on project area roadways potentially disturbing the few homes in the area. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

Therefore, the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in noise impacts similar to those of the proposed project. Once in operation, the expanded WWTP would result in less than significant increases in noise levels for the proposed project as well as the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative.

### Air Quality

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered a **potentially significant** impact.

Because both the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the proposed project are the same length, air quality impacts resulting from construction would be virtually identical. Operational impacts (emissions, odor, etc.) would be less than significant for both the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the proposed project.

### Surface Hydrology, Groundwater and Water Quality

The proposed project includes peak hour dry weather filtration for tertiary treatment for 30 mgd while the Peak Hour Dry Weather Filtration for Tertiary Treatment accommodates 23 mgd. Therefore, the effluent discharged to Old River would have exactly the same quality up to 23 mgd. In the event that flows exceed 23 mgd, the proposed project would be able to provide tertiary treatment for 7 mgd more than the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative. As a result, impacts to surface hydrology are expected to be more intense under the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative than under the proposed project.

## 6.0 ALTERNATIVES TO THE PROJECT

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The proposed project is anticipated to result in a temperature increase to receiving waters:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would most likely result in a temperature increase to receiving waters as well.

Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project.

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

Because the proposed project provides 7 mgd of additional tertiary treatment, cumulative water quality impacts resulting from ammonia, trace metals, pathogens, increased discharge of tertiary effluent, treated effluent on dissolved oxygen, total dissolved solids would be more intense for the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative than for the proposed project. In addition, impacts of the proposed discharge on TOC, pathogens, and trace metals would be more intense for the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative compared to the proposed project.

### Geology and Soils

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would follow essentially the same route to Old River as the proposed project's outfall pipeline. The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a **potentially significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

Based on the similarity of routes, the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative is anticipated to result in impacts to geology and soils similar to the proposed project.

### **Biological Resources**

Similar to the proposed project, the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would be expected to result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

**Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.

**Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.

**Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.

**Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

Based on the similarity of the pipeline routes, impacts similar to these are anticipated to occur in association with implementation of the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative as well.

Although difficult to estimate, the cumulative impacts of the proposed project in combination with the projects discussed in Section 4.8 (Biological Resources) and the projects discussed in

## 6.0 ALTERNATIVES TO THE PROJECT

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Section 4.6 (Surface Hydrology, Groundwater, and Water Quality) are anticipated to result in significant impacts to aquatic resources.

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

Similarly, cumulative impacts to aquatic resources would be anticipated to be significant and more intense for the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative. This is because this alternative would provide only partial filtration (e.g. 23 mgd) during wet weather events compared to the proposed alternative (30 mgd).

### Historic and Cultural Resources

The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact would be anticipated to occur in association with implementation of the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative.

### Public Services and Utilities

The following impacts were identified for the proposed project relative to damage to existing infrastructure and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**, and increased demand for electricity associated with expansion of facilities

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in impacts similar to those of the proposed project. Therefore, impacts would be significant relative to public services and utilities for both the Peak Hour Dry Weather Filtration for Tertiary

Treatment (23 mgd) Alternative and the proposed project. However, neither the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative nor the proposed project would impact landfill capacity.

### **Comparison Summary for the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative and the Proposed Project**

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in impacts similar to the proposed project in the following issue areas: land use, human health/risk of upset, traffic and circulation, noise, air quality, geology and soils, biological resources, historic and cultural resources, and public services and utilities.

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative would result in more intense impacts than the proposed project in the following issue areas: surface hydrology and water quality.

#### ADVANCED TREATMENT ALTERNATIVE

### **Description of Alternative – Advanced Treatment Alternative and the Proposed Project**

The Advanced Treatment Alternative would include tertiary-level treatment of effluent prior to discharge. Tertiary treatment refers to secondary treatment followed by filtration and disinfection. Tertiary treatment is not sufficient to remove contaminants such as trace organics, metals and dissolved materials such as salts. Therefore, if treatment standards beyond tertiary levels are required in the future, advanced treatment is available to remove residual contaminants. Advanced treatment would direct filtered effluent through a series of pressure membranes prior to discharge. Microfiltration (MF) followed by reverse osmosis (RO) would provide sufficient treatment for removing the constituents of concern. This alternative was considered based on potential future treatment standards.

#### **Land Use**

The Advanced Treatment Alternative would result in land use impacts similar to the proposed project. Although the advanced treatment infrastructure would be located on the existing WWTP site, temporary land use conflicts could occur in association with construction (generation of dust, noise, etc.). These impacts would be temporary and are considered less than significant for both the Advanced Treatment Alternative and the proposed project.

#### **Human Health/Risk of Upset**

The Advanced Treatment Alternative would result in human health/risk of upset more intense impacts than the proposed project. While impacts relative to accidental release, soil/groundwater contamination, digester gas, flooding and power outage would be similar for both this alternative

## 6.0 ALTERNATIVES TO THE PROJECT

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and the proposed project, additional impacts would occur in association with advanced treatment. By-products generated from advanced treatment (e.g. salts) are toxic and would require on-site storage and disposal. Therefore, the Advanced Treatment Alternative would increase the amount of toxic materials on the WWTP site potentially resulting in more intense impacts than the proposed alternative.

The proposed project could result in the following impact relative to human health and safety hazards from construction:

**Impact 4.2.1** Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact would be **potentially significant**.

A similar impact could result in association with implementation of the Advanced Treatment Alternative.

### Traffic and Circulation

Both the Advanced Treatment Alternative and the proposed project would result in temporary increases in traffic associated with construction of the WWTP expansion. Similarly, the Advanced Treatment Alternative and the proposed project would generate a slight increase in vehicle trips to the WWTP associated with additional employees, chemical deliveries and sludge and advance treatment by-product removal. Because area roadways (e.g. MacArthur Drive, Delta Avenue) are not subject to high volumes of traffic, impacts resulting from the aforementioned increases are considered less than significant.

The proposed project could result in the following impact relative to access limitations:

**Impact 4.3.1** Construction activities and the use of heavy equipment associated with pipeline installation could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a **significant impact**.

A similar impact could result in association with implementation of the Advanced Treatment Alternative. In addition, traffic on area roadways would be disrupted in association with construction of the advanced treatment facilities. Therefore, the Advanced Treatment Alternative would result in impacts to traffic that are similar to those of the proposed project

### Noise

In the short-term, construction noise associated with the Advanced Treatment Alternative would occur on project area roadways potentially disturbing the few homes in the area. The proposed project could result in the following impact relative to construction noise:

**Impact 4.4.1** During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered **potentially significant**.

Therefore, the Advanced Treatment Alternative would result in noise impacts similar to those of the proposed project. Following construction, the advanced treatment facilities could result in greater increases in noise impacts than the proposed project because of the pumps required as part of the MF and RO process.

### Air Quality

The Advanced Treatment Alternative would result in construction air quality impacts similar to those of the proposed project. The following impact was identified for the proposed project relative to construction air quality impacts:

**Impact 4.5.1** Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered at **potentially significant** impact.

Operational impacts (emissions, odor, etc.) may be more intense for the Advanced Treatment Alternative than the proposed project due to the addition of MF and RO and the residual brine produced as a by-product of advanced treatment.

### Surface Hydrology, Groundwater and Water Quality

The Advanced Treatment Alternative includes post-tertiary treatment of effluent prior to discharge. As advance treatment would remove trace organics, metals and dissolved materials such as salts, the quality of effluent produced by the Advanced Treatment Alternative would be superior to that of the proposed project. Therefore, the effluent discharged to Old River would be better than the proposed project. Accordingly, less intense impacts to surface hydrology and water quality would occur under the Advanced Treatment Alternative compared to the proposed project.

The proposed project is anticipated to result in a temperature increase to receiving waters:

**Impact 4.6.1** Under low flow conditions discharge from the proposed outfall diffuser would result in an increase in temperature in receiving waters that exceeds the requirements of the California Thermal Plan. This is considered a **potentially significant** impact.

The Advanced Treatment Alternative would most likely result in a temperature increase to receiving waters as well.

## 6.0 ALTERNATIVES TO THE PROJECT

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Although it is difficult to project future water quality, cumulative impacts are anticipated to be significant for the proposed project.

**Impact 4.6.3** From a conservative (i.e. worst-case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for one or several 303(d)-listed pollutants.

In contrast, cumulative impacts to water quality are expected to be less intense for the Advanced Treatment Alternative. Impacts resulting from ammonia, trace metals, pathogens, increased discharge of tertiary effluent, treated effluent on dissolved oxygen, total dissolved solids would be eliminated or greatly improved through advanced treatment. In addition, impacts resulting from discharge on TOC, pathogens, and trace metals would be less intense under the Advanced Treatment Alternative than under the proposed project. Short-term and long-term impacts would also be less intense for the Advanced Treatment Alternative.

### Geology and Soils

The Advanced Treatment Alternative would involve construction of the same facilities as the proposed project with the addition of advanced treatment facilities on the WWTP site. The proposed project could result in the following impacts relative to seismic hazards, liquefaction, expansive soils and erosion:

**Impact 4.7.1** Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a **potentially significant impact**.

**Impact 4.7.2** Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a **potentially significant impact**.

**Impact 4.7.3** The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a **significant impact**.

**Impact 4.7.4** Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a **significant impact**.

Because both the proposed project and the Advanced Treatment Alternative are essentially the same, with the exception that the Advanced Treatment Alternative would include more facilities on the WWTP site, geology and soils impacts are considered similar for both.

**Biological Resources**

Similar to the proposed project, the Advanced Treatment Alternative would be expected to result in less than significant impacts to common plant communities, habitat for common resident and migratory wildlife, special-status plants, special status bats, Swainson's hawk foraging habitat and riparian woodland. The proposed project could result in the following impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S:

**Impact 4.8.1** Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered **potentially significant**.

**Impact 4.8.2** Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered **potentially significant**.

**Impact 4.8.3** Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered **potentially significant**.

**Impact 4.8.4** Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a **potentially significant** impact.

**Impact 4.8.5** Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered **potentially significant**.

Based on the similarity of the facilities and the fact that the advanced treatment facilities would be constructed on the WWTP site, impacts similar to these are anticipated to occur in association with implementation of the Advanced Treatment Alternative.

Although difficult to estimate, the cumulative impacts of the proposed project in combination with the projects discussed in Section 4.8 (Biological Resources) and the projects discussed in Section 4.6 (Surface Hydrology, Groundwater, and Water Quality) are anticipated to result in significant impacts to aquatic resources.

**Impact 4.8.6** From a conservative (i.e. worst case standpoint), it may be projected that cumulative future impacts will be **potentially significant** for pollutants contributed by this project that may have an adverse impact on aquatic resources including resident and special-status fish species.

## 6.0 ALTERNATIVES TO THE PROJECT

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As the Advanced Treatment Alternative would include tertiary-level treatment of effluent prior to discharge, cumulative impacts to aquatic resources are anticipated to be less intense for this alternative than for the proposed project.

### Historic and Cultural Resources

The following impact was identified for the proposed project relative to undiscovered cultural resources:

**Impact 4.9.1** Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a **significant impact**.

A similar impact would be anticipated to occur in association with implementation of the Advanced Treatment Alternative.

### Public Services and Utilities

The following impacts were identified for the proposed project relative to damage to existing infrastructure and increased demand for special fire protection:

**Impact 4.10.1** Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially **significant impact**.

The Advanced Treatment Alternative would result in similar impacts to the proposed project relative to damage to existing infrastructure.

**Impact 4.10.2** Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially **significant impact**.

The Advanced Treatment Alternative would be energy intensive in order to operate MF and RO processes. As a result, the Advanced Treatment Alternative would result in more intense impacts than the proposed project relative to electrical demand and increased loads on existing electrical infrastructure. In addition, the Advanced Treatment Alternative would generate hazardous materials requiring storage and removal which could result in more intense impacts to special fire protection services. However, neither the Advanced Treatment Alternative nor the proposed project would impact landfill capacity.

### Comparison Summary for the Advanced Treatment Alternative and the proposed project

The Advanced Treatment Alternative would result in less intense impacts than the proposed project in the following issue areas: surface hydrology, groundwater and water quality.

The Advanced Treatment Alternative would result in similar impacts to the proposed project in the following issue areas: land use, traffic and circulation, geology and soils, biological resources, and historic and cultural resources.

The Advanced Treatment Alternative would result in more intense impacts than the proposed project relative to the following issue areas: human health/risk of upset, noise, air quality, and public services and utilities.

### Comparison Between the Treatment Alternatives and the Proposed Project

Table 6-3 provides a summary of the evaluation of the treatment alternatives compared to the project as proposed.

**TABLE 6-3**  
**COMPARISON OF TREATMENT ALTERNATIVES**

Environmental Categories	Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd)	Advanced Treatment
Land Use	S	S
Human Health/Risk of Upset	S	M
Traffic and Circulation	S	S
Noise	S	M
Air Quality	S	M
Surface Hydrology, Groundwater and Water Quality	M	L
Geology and Soils	S	S
Biological Resources	S	S
Historic and Cultural Resources	S	S
Public Services and Utilities	S	M

L = Less Severe than the Project in terms of environmental impact.

S = Similar to the Project in terms of environmental impact.

M = More Severe than the Project in terms of environmental impact.

## 6.4 CONCLUSIONS

Based on the above comparative analysis, the No Project Alternative would overall result in less environmental impacts than the proposed project. However, under the No Project Alternative, the City of Tracy would be limited in its ability to provide wastewater to support planned growth. Moreover, the City would experience a shortfall in wastewater capacity in the next 3-4 years. While the No Project Alternative results in the fewest environmental impacts, it would not meet the basic objectives of the proposed project.

## 6.0 ALTERNATIVES TO THE PROJECT

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While the proposed outfall location is not the shortest route compared to the possible diffuser alternatives, it would follow essentially the same route as the existing diffuser. Thus, it would be located in areas that have previously been disturbed. The Co-Location Alternative, is virtually identical to the proposed project's outfall route. However, the proposed location of the diffuser for this alternative would result in all effluent flows being discharged at the same location along Old River. The proposed project would locate a diffuser outfall approximately 800 feet west of the existing outfall which would allow for better mixing than the Doughty Cut Alternative, Old River South Alternative, Sugar Cut Alternative or Tom Paine Slough Alternative.

The length of the pipeline would determine the duration of construction with each alternative alignment. As the Dougherty Cut Alternative is the longest of pipeline alternatives, it would result in more intense air quality impacts than the proposed project. However, alignments which are shorter than the proposed project (Old River South and Tom Paine Slough) would result in less intense air quality impacts because construction would occur over a shorter period of time. Both the Maximum Summertime Reuse of Recycled Water (No Seasonal Storage) Alternative and the Maximum Summertime Reuse of Recycled Water (With Seasonal Storage) Alternative would result in more intense impacts relative to land use, noise, air quality, geology and soils, biological resources, and public services and utilities than the proposed project. This would be due to the need for construction of extensive distribution infrastructure as well as storage facilities in the case of the Maximum Summertime Reuse of Recycled Water (With Seasonal Storage) Alternative. In contrast, both of these alternatives would result in less intense impacts relative to surface hydrology, groundwater and water quality than the proposed project as the quantity of effluent discharged would be greatly reduced (Maximum Summertime Reuse of Recycled Water (With Seasonal Storage) Alternative) or eliminated entirely (Maximum Summertime Reuse of Recycled Water (With Seasonal Storage) Alternative).

The proposed project avoids or reduces significant adverse project impacts (e.g. follows essentially the same outfall route, outfall location allows good dilution, avoids major land use disturbances) and would be considered the environmentally superior alternative. The proposed project meets the objectives of the project and is financially feasible. Therefore the proposed project is the preferred alternative as well as the environmentally superior alternative.

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7.0 LONG-TERM IMPLICATIONS  
OF THE PROJECT

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## 7.0 LONG-TERM IMPLICATIONS OF THE PROJECT

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This section discusses the additional topics statutorily required by CEQA, pursuant to CEQA Guidelines Section 15126.2. The topics discussed include significant and unavoidable environmental impacts, and growth-inducing impacts.

### 7.1 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL EFFECTS

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance.

In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine if the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The City of Tracy can approve a project with unavoidable adverse impacts if it prepares a "Statement of Overriding Considerations" setting forth the specific reasons for making such a judgment.

The EIR for the UMP identified significant and unavoidable impacts to land use, population/housing/employment, agriculture, soils and mineral resources, aesthetic resources, biological resources, cultural resources, and water resources, energy and resource conservation, traffic and circulation, air quality, noise, public safety/hazardous materials, public services and facilities as significant and unavoidable. In conjunction with adoption of the UMP, the City of Tracy adopted findings and a statement of overriding considerations associated with the certification of the EIR.

As identified in Section 4.0, Environmental Setting, Impacts and Mitigation, the proposed project would not result in any significant and unavoidable impacts to the environment

### 7.2 GROWTH-INDUCING IMPACTS

#### LEGAL CONSIDERATIONS

As required by CEQA Guidelines Section 15126.2(d), an EIR must include a discussion of the ways in which a proposed project could directly or indirectly foster economic development or population growth, and how that growth would, in turn, affect the surrounding environment. Growth can be induced in a number of ways, including the elimination of obstacles to growth, or through the stimulation of economic activity within the region.

Direct growth-inducing impacts result when the development associated with a project directly induces population growth or the construction of additional developments within the same geographic area. These impacts may impose burdens on a community or encourage new local development, thereby triggering subsequent growth-related impacts. The analysis of potential growth-inducing impacts includes a determination of whether a project would remove physical

## **7.0 LONG-TERM IMPLICATIONS OF THE PROJECT**

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obstacles to population growth. This often occurs with the extension of infrastructure facilities that can provide services to new development.

Indirect growth-inducing impacts result from projects that serve as catalysts for future unrelated development in an area. Development of public institutions (e.g. a college), the introduction of employment opportunities, or removal of a constraint on a required public service within an area are examples of projects that may result in indirect growth-inducing impacts.

Wastewater treatment service is one of the primary public services needed to support urban development. The proposed WWTP expansion would increase the plant's wastewater treatment capacity in increments occurring in four phases over a period of approximately 9 years (2002 – 2011). The proposed expansion would accommodate planned urban development and population growth consistent with buildout of the UMP (City of Tracy, 1993a). In accordance with the CEQA definition, the WWTP expansion would be indirectly growth-inducing.

Under CEQA, induced growth is not considered necessarily detrimental or beneficial. Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth, in some other way, could significantly affect the environment.

### **DEVELOPMENT AND GROWTH TRENDS OF THE WWTP SERVICE AREA**

The City of Tracy General Plan/Urban Master Plan (UMP) was adopted in 1993. The UMP outlines the plan for development within the City's Sphere of Influence for the next 20 years. The UMP identifies development of approximately 57,100 additional residential units as well as new commercial and industrial development to accommodate an estimated population of 162,345 (City of Tracy, 1993b). In conjunction with the UMP, the City's adopted its Wastewater Master Plan in 1994. The Master Plan projects a total of 32.5 mgd of average wastewater flows to be generated from the City by the year 2020. The Master Plan recommended that the City increase capacity at the WWTP to accommodate flows from the expanded service area.

With the exception of the southern portion of the expanded city limits (i.e. the Tracy Hills Specific Plan), wastewater from all near-term development is proposed to be treated at the WWTP.

### **FACTORS AFFECTING GROWTH IN THE CITY OF TRACY**

#### **City of Tracy Urban Management Plan**

The UMP is the principal planning document for the City of Tracy. It is part of Tracy's Urban Management strategy to guide and direct growth in the coming years. The UMP includes community areas and urban centers where the most intensive urban development would occur. In total, 14 different land use designations are included on the UMP land use map.

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The UMP is perceived as growth inducing due to its identification of oversized infrastructure. The infrastructure is intentionally oversized to ensure that adequate capacities are available for buildout of the UMP. This issue is identified in the UMP EIR (SCH. No. 91092060) (City of Tracy, 1993b). Mitigation measures and a Statement of Overriding Considerations (Resolution No. 93-226): have been adopted to address the growth inducing aspect of oversized infrastructure.

### Measure A

Tracy voters approved Measure A on November 7, 2000. Measure A amended provisions of the existing Residential Growth Management Plan, also known as the Growth Management Ordinance (GMO), primarily through reductions to the rate at which the City may allocate Residential Growth Allocations (RGA's) and issue residential building permits.

Since its inception in 1987, the GMO has required that an RGA be obtained prior to issuance of each residential building permit. Certain exceptions to this rule apply, including construction of an addition to or remodeling of an existing dwelling unit, construction of model homes, and development of a four-plex or lesser number of dwelling units on an existing single lot of record created prior to March 17, 1992. RGAs may be allocated to an applicant only when the City is able to make findings that necessary public services and infrastructure are or will be available to support the residential unit(s) with reasonable certainty.

Prior to the passage of Measure A, the number of RGAs and building permits in the GMO was limited to a single-year maximum of 1,500 and an annual average of 1,200. Measure A revised the number of RGA's and building permits to a single-year maximum of 750 and an annual average of 600. In the existing GMO, the "baseline date" for determining compliance with the annual average of 1,200 RGA's and building permits is January 1, 1988 (the year the GMO first went into effect), while in Measure A the "baseline date" is January 1, 2000.

### SERVICE AREA GROWTH ANTICIPATED TO BE SUPPORTED BY PLANT EXPANSION

As described in Chapter 3.0 (Project Description), the WWTP is proposed to be expanded from its current permitted capacity of 9.0 mgd ADWF to 16.0 mgd ADWF. The expansion would occur in phases over a 9 to 11-year period and accommodate projected population increases shown in **Table 7-1**. Phase 1 would increase capacity from 9.0 mgd to 10.8 mgd with construction beginning in 2002 and ending in 2004. Construction of Phase 2 would begin in 2005 and end in 2007 increasing capacity from 10.8 to 12.0 mgd. Phase 3 construction would begin in 2008 and be completed in approximately 2010 and increase capacity from 12.0 mgd to 13.5 mgd. Finally, Phase 4 would increase capacity 13.5 mgd to 16.0 mgd and potentially begin in 2011. Phase 3 and 4 may be postponed if City growth is less than originally projected in the UMP due to market influences as well as the effects of Measure A.

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The wastewater treatment plant expansion to 16 mgd ADWF is expected to provide wastewater service for up to 38,000 Equivalent Consumer Units (ECU's) of planned development (residential, commercial, industrial, public), some of which have financial commitments to fund this wastewater treatment plant expansion. The City uses ECUs to charge its customers and to assess the level of development. One ECU generates an average of 300 gallons per day of wastewater (CH<sub>2</sub>M Hill, 2001). The effects of growth generated by planned projects and the need to provide services have been identified in the UMP and addressed in the UMP EIR as well as each individual project's environmental documentation.

### GROWTH EFFECTS OF PLANT EXPANSION

The timing, magnitude, and location of land development and population growth in a community or region is based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and non-residential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions.

The primary instrument of regulating development and growth in California is the General Plan. The City of Tracy UMP is the overall guiding document that designates new development and general growth in the WWTP Service Area. Environmental effects of growth anticipated under the UMP have been evaluated in the UMP EIR (SCH. No. 91092060).

**TABLE 7-1  
PROJECTED POPULATION BY YEAR  
2002 – 2013**

Year	Maximum Buildout Building Permits not Subject to Measure A Including Affordable Housing	Projected Housing Units	Projected Persons/ Household	Projected Population
2000	1,500	18,410	2.8	51,548
2001	1,350	19,910	2.8	55,748
2002	1,350	21,260	2.8	59,528
2003	1,350	22,610	2.8	63,308
2004	1,350	23,960	2.8	67,088
2005	150	25,310	2.8	70,868
2006	150	25,460	2.8	71,288
2007	150	25,610	2.8	71,708
2008	150	25,760	2.8	72,128
2009	150	25,910	2.8	72,548
2010	150	26,060	2.8	72,968
2011	150	26,210	2.8	73,388
2012	550	26,360	2.8	73,808
2013	750	26,910	2.8	75,348

## 7.0 LONG-TERM IMPLICATIONS OF THE PROJECT

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Notes: 18,410 housing units and persons per household from SSJID DEIR (ESA, 1999, SCH No. 98022018) Housing Unit information taken from City Council Agenda Item 9- discussion of Issues Relating to Implementation of Measure A, an Identification of Projects with Vested Rights, and adoption of Revised Guidelines Relating to the Growth Management Ordinance. Assumes maximum buildout of Building Permits not subject to Measure A combined with the 150 maximum of Affordable Housing (years 2001 – 2013). Years 2012 and 2013 include 400 units and 600 units respectively of building permits under Measure A with a 600 annual average limit.

The City anticipates that the 1.8 mgd expansion (Phase 1) would need to be on-line by the end of 2004 to ensure that sufficient capacity is available to serve future growth of the service area. Phase 2, which would increase capacity another 1.2 mgd to 12.0 mgd, is planned to be in use by 2007. The 1.5 mgd added as part of Phase 3 would bring plant capacity to 13.5 mgd for use in 2009 or 2010. Lastly, Phase 4 would add 2.5 mgd to bring plant capacity to 16.0 mgd by approximately 2011. As noted in the Project Description, the timing of construction of Phase 3 and 4 could be delayed.

Although the WWTP expansion would provide necessary wastewater service to support future growth, development of several other public facilities and services would also be required to support growth. These public facilities and services would include, but are not limited to, roadway improvements, water supply and treatment, electrical and natural gas distribution facilities, and public schools. While the lack of adequate infrastructure can constrain economic development, the provision of infrastructure can effect the location, timing and pattern of development.

The proposed expansion represents one component necessary to accommodate buildout of land uses identified in the UMP. Buildout is anticipated to require approximately 32 mgd. The proposed WWTP expansion to 16 mgd would meet approximately half the amount needed at buildout, which includes development projects that are anticipated under the UMP and have been approved by the City with financing commitments to the WWTP expansion. Therefore, implementation of the proposed WWTP expansion would assist the City in accommodating only a portion of planned growth under the UMP. Additional wastewater treatment capacity and facilities will be ultimately be required to serve full buildout under the UMP. Further, the timing of the expansion to 16 mgd may be delayed based on a variety of factors discussed elsewhere in this chapter.

### SECONDARY EFFECTS OF GROWTH

#### **Project Contribution to City-Wide Growth**

The proposed WWTP expansion would accommodate a portion of buildout of the UMP and would contribute to secondary environmental effects of City-wide growth under the UMP. Significant and unavoidable impacts anticipated from UMP growth include the following areas: agriculture and soils, biological resources, traffic and circulation, air quality, noise, land use and visual and aesthetic resources.

The proposed WWTP expansion would incrementally remove wastewater service limitations within the Urban Services Boundary. Buildout of the UMP would result in secondary

## **7.0 LONG-TERM IMPLICATIONS OF THE PROJECT**

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environmental effects of growth that are associated with the adopted UMP (Resolution 93-227). These secondary environmental effects were evaluated by the City as part of the UMP and were documented pursuant to CEQA in the UMP Final EIR (SCH. No. 9192060) certified June 21, 1993 (Resolution No. 93-226).

### **SUMMARY OF ENVIRONMENTAL EFFECTS OF THE UMP**

A summary of significant environmental effects of planned growth in the City, as identified in the UMP EIR, is presented below. In most instances, the impact is mitigated through the goals, policies and actions of the UMP.

### **Land Use**

#### **Land Use Conflicts**

Land use conflicts were identified in the UMP EIR as a significant impact of UMP implementation. Several UMP policies address a variety of land use conflicts and provide mitigation for these conflicts. This mitigation includes land use goals that address development that is consistent with the overall City character (Goal LU 2); requires development to buffer impacts to neighboring uses (Goal LU 3); provides for well-planned and well developed development (Goal LU 4); provides for compatible land uses near extraction activities and for the adoption of a "Right to Farm" ordinance which would protect both agriculture and resource extraction activities as long as they are viable (Goal LU 8); preserves agricultural lands and economically viable operations (Goal LU 5); and minimizes land use conflicts of development on waterways, riparian corridors, and adjacent buffer areas (Goal LU 1). In addition, the following additional mitigation measure was adopted as part of the UMP EIR to reduce land use conflict impacts to a less than significant level (Resolution No. 93-226):

- M 1.1** Upon annexation to the City of Tracy, all proposed commercial projects within the Larch/Clover residential area shall be evaluated based on their consistency with established communities and land uses. Changes in building design and placement on lots, installation of noise or visual buffers, and restrictions on the hours of commercial operation may be required to make a project more compatible with existing land uses. Prior to any new development occurring in the Larch/Clover area, additional plans shall be done for the entire area to ensure integration of land use planning to address potential social impacts, financing of projects, and economic plans to assess the economic impacts of a project on the area.

#### **Noise and Safety Concerns**

Land use related noise and safety concerns were identified in the UMP EIR as a potentially significant impact. General Plan goals that provide mitigation to these impacts include Goal LU

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7 (land use patterns that minimize conflicts between neighboring uses and transportation corridors) and LU 8 (compatible land uses near extraction activities and adoption of a “Right to Farm” ordinance); Goal AQ 2 of the Air Quality Element (land use conflicts between emission sources and sensitive receptors); Goal NO 1 and NO 2 of the Noise Element (provide for the location of noise tolerant land uses in areas committed to noise producing uses); Goal CO 4 and CO 5 of the Conservation Element (reduction of noise and safety impacts as a result of agricultural and mineral and gravel related industries). No additional mitigation measures were required to reduce land use related noise and safety impacts to less than significant.

### **Change in Physical Character**

The UMP EIR identified a change in physical character of the TPA as a significant impact. Several General Plan Goals address this issue and mitigate impact to character of the TPA. Goals that mitigate this impact include Goal LU 2 directs growth to concentrate around urban centers and relates neighborhoods that support the “small town” character and lifestyle); Goal LU 3 (requires developments to incorporate neighborhood parks and other gather spaces into development and construction plans); and Goal LU 5 that provides for a revitalized downtown area; and Goal OS 1 of the Open Space Element and associated policies and actions, provide for the conservation of natural resources through the preservation of open space. No additional mitigation measures were required to reduce this impact to less than significant.

### **Imbalance between Residential, Jobs and Public Services**

As identified in the UMP EIR, implementation of the UMP would result in the potential for future development to create an imbalance between residential population, jobs, and public services. The UMP includes several goals that would mitigate this impact. The Goals include provision of a balance between residential population, jobs and services (Goal LU 1); new residential development or redevelopment of existing areas near downtown (Goal LU 5); a land use mix that provides employment opportunities for residents of Tracy by encouraging a diversity of industries (Goal LU 6); and reviewing land use proposals for their effect on services (Goal LU 9). In addition to goals and associated policies and actions from the Land Use Element, goals from the Housing Element and Air Quality Element would also mitigate this impact. Goal HO 2 from the Housing Element provides for balancing growth between housing, employment and services. Goal AQ 1 of the Air Quality Element encourages a balance between jobs and housing. No additional mitigation measures are required to reduce a potential imbalance between residential population, jobs and public services to less than significant.

### **Population, Employment and Housing**

#### **Jobs/Housing Balance**

The UMP EIR identified cumulative impacts to regional population growth and jobs/housing balance. UMP goals that provide partial mitigation to these impacts consist of Land Use

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Element Goal LU 1 and Housing Element Goal HO 2. Goal LU 1 provides for a balance between residential population, jobs, and ability to provide services. Goal HO 2 provides for a balance between housing, employment, and the provision of services. In addition, the following additional mitigation measure was adopted as part of the UMP EIR to reduce jobs/housing balance impacts to a less than significant level (Resolution No. 93-226):

**M 76.1** Tracy shall encourage the provision of housing in the City that would meet the recommendations of SJCCOG Regional Fair Share Housing Report.

However, despite these goals, policies and actions in the UMP, the City concluded that impacts to growth and the jobs/housing balance would be significant and unavoidable and adopted a Statement of Overriding Considerations (Resolution No. 93-226).

### **Agriculture, Soils, and Mineral Resources**

#### **Soil Erosion, Agricultural Land Conversion and Mineral Resource Extraction**

Cumulative increases in soil erosion, agricultural land conversion, and decreases in lands available for mineral resource extraction were identified in the UMP EIR. Several goals of the UMP address the need for preservation of these resources and provide mitigation to prevent their loss. Mitigation includes Goal LU 8 of the Land Use Element (continuation of agriculture and resources extraction) and Goals CO 4 and CO 5 of the Conservation Element (protection of agricultural and open space areas, and the future productivity of mineral resources lands). In addition, the UMP EIR recommended additional mitigation to reduce impacts to soils, agricultural and mineral resource lands:

**M 77.1** Mitigation measures in Section 3.3 proposed the establishment of a farmland preservation program. The City should cooperate with San Joaquin County in the establishment of the program.

However, the City concluded that cumulative increases in soil erosion, agricultural land conversions and a cumulative decrease in lands available for mineral resource extraction would still occur in conjunction with implementation of the UMP. Therefore, these impacts would be significant and unavoidable and the City adopted a Statement of Overriding Considerations (Resolution No. 93-226).

### **Visual and Aesthetic Resources**

#### **Changes in Visual and Aesthetic Character**

The UMP EIR identified cumulative changes in the visual and aesthetic character of San Joaquin County associated with build out of the UMP. Goals LU 2 and LU 8 of the Land Use Element, Goal CO 5 of the Conservation Element and Goals OS 1 (conserve natural resources through the

protection and enhancement of permanently preserved open space), OS 2 (establish subregional open space and parkway system) and OS 3 (open space lands for the future expansion of City facilities and amenities) of the Open Space Element would concentrate development and provide for preservation of open space. However, these goals would not fully mitigate impacts to visual and aesthetic character. Further, no feasible mitigation is available. Therefore, the City concluded that cumulative impacts to visual and aesthetic character are considered significant and unavoidable and adopted a Statement of Overriding Considerations (Resolution No. 93-226).

### **Biological Resources**

#### **Conversion of Habitats to Urban Uses**

The UMP EIR identified regional conversions of plant and animal habitats to urban land uses. Countywide agricultural conversions reduce compatible foraging habitat for the State threatened Swainson's hawk and the San Joaquin kit fox. UMP Goal OS 1 (conservation of natural resources through the protection or establishment of wildlife habitat in conjunction with other uses and development in the TPA) provides partial mitigation for impacts to conversion of habitats. However, the City still concluded that this impact would remain significant and unavoidable and adopted a Statement of Overriding Considerations (Resolution No. 93-226).

### **Cultural Resources**

#### **Impacts to Cultural Resources**

The UMP EIR identified that implementation of the UMP would add to cumulative impacts to cultural resources. UMP Goal CO 6 of the Conservation Element (preservation of historic and prehistoric cultural resources within the Tracy Planning Area) provides mitigation to reduce cultural resource impacts related to UMP buildout to less than significant. No further mitigation is required.

### **Water Resources**

#### **Degradation of Water Quality**

The UMP EIR identified that development under the UMP would degrade water quality. Goal CO 1 of the Conservation Element (attainment and maintenance of water quality standards) and associated policies and actions would mitigate this impact to less than significant. No further mitigation is required.

## 7.0 LONG-TERM IMPLICATIONS OF THE PROJECT

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### Energy and Resource Conservation

#### Energy and Resource Consumption

The UMP EIR identified that implementation of the UMP would result in cumulative energy and resource consumption. General Plan Goals from the Conservation Element and Open Space Element would provide partial mitigation to energy and resource consumption. Goal CO 3 of the Conservation Element provides for efficient use of energy resources throughout the TPA); Circulation Element Goals CI 5 (enhanced opportunities for safe and convenient bicycle and pedestrian travel in and around the City as alternative modes of transportation); Goal CI 6 (a balanced transportation system which encourages the use of public transit and high occupancy vehicles) and Goal CI 7 (a multi-modal transportation system which encourages efficient use of existing and future facilities) provide for decreasing vehicle trips and traffic. The UMP included additional mitigation. Despite goals and associated policies and actions of the UMP which were designed to self-mitigate energy and resource consumption, the City concluded that this impact would be significant and unavoidable and adopted a Statement of Overriding Considerations (Resolution No. 93-226).

### Traffic and Circulation

#### Impacts to Regional Freeways

The UMP EIR identified traffic impacts to I-205, I-580 and I-5 resulting from cumulative development. UMP goals, policies and actions contained in the Circulation Element provide partial mitigation to address regional traffic flow, trip reduction, and the jobs/housing balance. In addition, the UMP EIR provides the following mitigation measures to further mitigate impacts to regional freeways:

**M 83.1** The City of Tracy shall cooperate with, and participate in regional studies and plans, and pay their fair share in the funding of projects. The following shall be included, but not be limited to:

- Regional trip reduction through Travel Demand Management measures;
- Eight lanes on I-205;
- Connectors between Tracy, Lathrop, and Manteca to divert traffic from I-205 and I-5;
- Rail service through the Altamont Pass;
- Truck climbing lanes on the Altamont pass;
- HOV lanes on I-205 and through the Altamont Pass;
- Congestion pricing on Altamont Pass, I-205, I-580, and I-5.

## 7.0 LONG-TERM IMPLICATIONS OF THE PROJECT

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Although the UMP Goals, policies and actions of the circulation element would reduce impacts to regional freeways, the City concluded that this impact would remain significant and unavoidable and adopted a Statement of Overriding Considerations (Resolution 93-226).

### **Air Quality**

#### **Cumulative Air Quality Impacts**

The UMP EIR identified cumulative impacts to air quality resulting from build out of the UMP. Goals policies and actions from the Air Quality Element would reduce long-term regional emissions and local CO concentrations. However, these goals, policies and actions would not be sufficient to mitigate regional impacts to air quality. Further, no additional mitigation is feasible. Therefore, cumulative impacts to air quality are significant and unavoidable and are addressed in the Statement of Overriding Considerations (Resolution 93-226).

### **Noise**

#### **Cumulative Noise Impacts**

The UMP EIR identified cumulative noise impacts resulting from buildout of the UMP. No mitigation has been proposed as part of the UMP. However, the Goals, Policies and Actions of the Noise Element provide for the planning of land uses in the Tracy Planning Area. By adhering to the UMP, traffic noise impacts to surrounding land uses are generally considered **less than significant**. However, isolated cases of land uses that cannot be retrofitted to meet applicable noise standards may still occur.

### **Public Safety/Hazardous Materials**

#### **Cumulative Public Safety/Hazardous Materials Impacts**

The UMP EIR identified cumulative safety/hazardous materials impacts resulting from buildout of the UMP. The Safety Element of the UMP provides policies and actions to reduce the risk of natural hazards, hazardous materials and waste, and crime. Adherence to these policies and actions in conjunction with buildout of the UMP would reduce impacts to public safety and hazardous materials to less than significant levels. No further mitigation is required.

### **Public Facilities**

#### **Increased Demand on Wastewater Facilities**

The UMP EIR identified cumulative increased demand on wastewater facilities. However, each jurisdiction in San Joaquin County, including the City of Tracy, is responsible for providing wastewater facilities to accommodate growth. Moreover, the Public Facilities and Services

## **7.0 LONG-TERM IMPLICATIONS OF THE PROJECT**

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Element of the UMP provides for the development of wastewater facilities concurrent with city growth. The proposed project fulfills a portion of facilities needed for wastewater, as directed by PF policy PF 1.7. Therefore, impacts to wastewater facilities are considered **less than significant**. No additional mitigation is required.

### **Increased Demand for Water Facilities**

The UMP EIR identified cumulative increased demand on water facilities on a Countywide basis. Water availability for buildout of the UMP is assumed to include cumulative demand and availability of water resources. The Public Facilities and Services Element of the UMP provides for water facilities concurrent with city growth. This would mitigate impacts to water facilities to less than significant levels. No additional mitigation is required.

### **Increased Storm Drainage Requirements**

The UMP EIR identified cumulative increased demand for storm drainage. The provision of storm drainage facilities is dependent on the location and use proposed for a specific development. As a result, mitigation of storm drainage impacts would be specific to each site. The goals, policies and actions of the Public Facilities and Services Element provide for the development of storm drainage facilities concurrent with city growth. Therefore, cumulative impacts to storm drainage are considered **less than significant**. No additional mitigation is required.

### **Increased Demand on Landfills**

The UMP EIR identified cumulative increase in demand on landfills. UMP Goal PF 2 and Policy 2.6 of the Public Facilities and Services Element provides for the reduction of solid waste. Adherence to this goal provides adequate mitigation to reduce impacts to landfills to less than significant. No additional mitigation is required.

### **Increased Demand for Electrical and Gas Services**

The UMP EIR identified cumulative increased demand for electricity and natural gas. Additional infrastructure to transport both electricity and natural gas would be needed to serve cumulative development. The Public Facilities and Services Element of the UMP provides for utility infrastructure to be provided concurrent with development. Goal CO 3, and associated policies and actions of the Conservation Element, call for efficient energy usage. This would partially reduce impacts to utility infrastructure. The UMP EIR also identified the following impact relative to utilities:

- M 91.1** Mitigation measures identified in Section 3.12 are applicable on the cumulative level.

This mitigation measure in conjunction with the Goals, Policies and Actions of the UMP would reduce impacts to electrical and gas infrastructure to less than significant. However, since adoption of the UMP, the State of California has experienced a shortage in the availability of energy.

### **Public Services**

#### **Increased Demand for Fire Protection**

The UMP EIR identified cumulative increased demand for fire protection services. Policy SA 3.1 of the UMP Safety Element (provide fire protection and law enforcement to ensure the public's health and safety) provides mitigation for cumulative impacts to fire protection services. The UMP EIR also contains the additional mitigation that together with the policy of the UMP, reduces impacts to fire projection to a **less-than-significant level**. No additional mitigation is required.

#### **Increased Demand for Police Protection**

The UMP EIR identified cumulative increased demand for police protection services. Each jurisdiction in the San Joaquin County is responsible for providing police protection services. Goal SA 3 of the UMP Safety Element (provide for law enforcement to ensure the public's health and safety) is sufficient mitigation to reduce cumulative impacts to police protection services to **less than significant**. No additional mitigation is required.

#### **Increased Demand for Schools**

The UMP EIR identified cumulative increased demand for schools. The Public Facilities and Services Element of the UMP mitigates this impact through Goal PF 4 and associated policies and actions provide for adequate schools for all students and establishes that new residential development is responsible for its effects on schools. Adherence to the provisions of the Public Facilities and Services Element would reduce impacts to schools to less than significant levels. No additional mitigation is required.

#### **Increased Demand for Library Services**

The UMP EIR identified cumulative increase in demand for library services. Under the UMP, library services are provided to service Tracy. Each jurisdiction in San Joaquin County is required to provide library services. Policy 3.3 of the UMP Public Facilities and Services Element provides for adequate library facilities and services for the community needs. Adherence to this Policy would reduce impacts to library services to less than significant. No additional mitigation is required.

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### Increased Demand for Park and Recreation Services

The UMP EIR identified cumulative increased demand for park and recreation services. The Public Facilities and Services Element of the UMP provide Goals, Policies and Actions to provide for adequate parks in the City. Goal PF 6 (parks and recreation facilities and services that improve and maintain the quality of life) would partially mitigate this impact. The UMP EIR also identified additional mitigation to further reduce impacts to parks and recreation. The goals, policies and actions of the UMP, together with mitigation identified in the UMP EIR, would reduce impacts to parks and recreation to **less than significant**.

### SUMMARY OF SECONDARY ENVIRONMENTAL EFFECTS

Expansion of the Tracy WWTP from 9.0 mgd and up to 16 mgd would support growth anticipated under the UMP and result secondarily in the general environmental effects described above. The City would be required to evaluate project-specific environmental effects of development projects under the UMP pursuant to CEQA.

As previously stated, the timing and sizing of maximum plant expansion currently anticipated is 16 mgd by the year 2011. This would accommodate only a portion of the 32.5 mgd needed for buildout of the UMP and would not provide for growth in excess of what is planned for in the UMP. Other facilities in addition to the expanded WWTP would be required to accommodate wastewater flows anticipated to result from buildout of the UMP. Therefore, the proposed project is considered growth accommodating rather than growth inducing.

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## 8.0 REPORT PREPARERS AND REFERENCES

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APPENDIX A  
NOTICE OF PREPARATION

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## NOTICE OF PREPARATION

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**DATE:** January 12, 2000

**TO:** Responsible Agencies, Organizations and Interested Parties

**LEAD AGENCY:** City of Tracy  
Contact: Mr. Robert Conant, Senior Planner  
520 Tracy Boulevard  
Tracy, CA 95376

**SUBJECT:** Environmental Impact Report for the City of Tracy Wastewater Treatment Plant (WWTP) Expansion

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In discharging its duties under Section 15021 of the California Environmental Quality Act (CEQA) Guidelines, the City of Tracy (as Lead Agency) intends to prepare an Environmental Impact Report, consistent with Article 9 of the CEQA Guidelines, for the City of Tracy Wastewater Treatment Plant (WWTP) Expansion. In accordance with Section 15082 of the CEQA Guidelines, the City of Tracy has prepared this Notice of Preparation to provide Responsible Agencies and other interested parties with sufficient information describing the proposal and its potential environmental effects.

The determination to prepare an Environmental Impact Report was made by the City of Tracy. An Initial Study has been prepared pursuant to CEQA Section 15063, which identifies the anticipated environmental effects of the project.

As specified by the CEQA Guidelines, the Notice of Preparation will be circulated for a 30-day review period. The City of Tracy welcomes public input during this review. In the event that no response or request for additional time is received by any Responsible Agency by the end of the review period, the Lead Agency may presume that the Responsible Agency has no response.

Comments may be submitted in writing during the review period and addressed to:

Mr. Robert Conant, Senior Planner  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

The comment period closes on February 11, 2000

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## **A. PROJECT LOCATION, OWNERSHIP, AND CURRENT USE**

The City of Tracy Wastewater Treatment Plant (WWTP) is a 9.0 million gallons per day (MGD) capacity facility located on the corner of Larch Road and Holly Drive located within the northern portion of the City of Tracy Urban Management Plan (UMP) area (see **Figure 1**) and is within City limits. The plant, owned and operated by the City of Tracy, collects wastewater from residences, businesses, and industry within the City's service area and provides primary and secondary treatment prior to discharging to the Old River. First operated in 1930, the plant has since undergone numerous upgrades and improvements to its treatment facilities to keep pace with the City's increased wastewater loads and to comply with increasingly stringent federal and state water quality and environmental regulations.

Almost 14 years since the last major facility upgrade, the City is now proposing to expand the capacity of the WWTP in response to a planned population growth in the service area. Based on current estimates of planned population growth, peak wastewater flows would exceed the capacity of the plant before the year 2005. In response, the City is pursuing the proposed expansion project that would increase the current design flow capacity of the WWTP to 16.0 MGD.

Current land uses adjacent to the WWTP are primarily industrial, including the Holly Sugar refining facility and a scrap metal recycling facility. Adjacent agricultural land is currently planted in alfalfa.

## **B. PROJECT OBJECTIVES**

The following are primary objectives of the City of Tracy Wastewater Treatment Plant (WWTP) Expansion:

- Provide adequate wastewater treatment capabilities sufficient to treat wastewater flows that would be generated by existing and planned future populations within the City of Tracy service area.
- Provide a cost-effective means for treating wastewater while minimizing the potential impacts to the environment.
- Provide additional wastewater facility capacity in conformance with the goals and policies of the City of Tracy Urban Management Plan and Wastewater Master Plan.

## **C. PROJECT CHARACTERISTICS**

### **BACKGROUND**

Since the WWTP was constructed in 1930 at its current site in the City, the plant has undergone three major periods of expansion. Originally, treatment at the plant consisted of minimal solids separation and biological treatment via a grit chamber, an Imhoff tank, and a trickling filter.

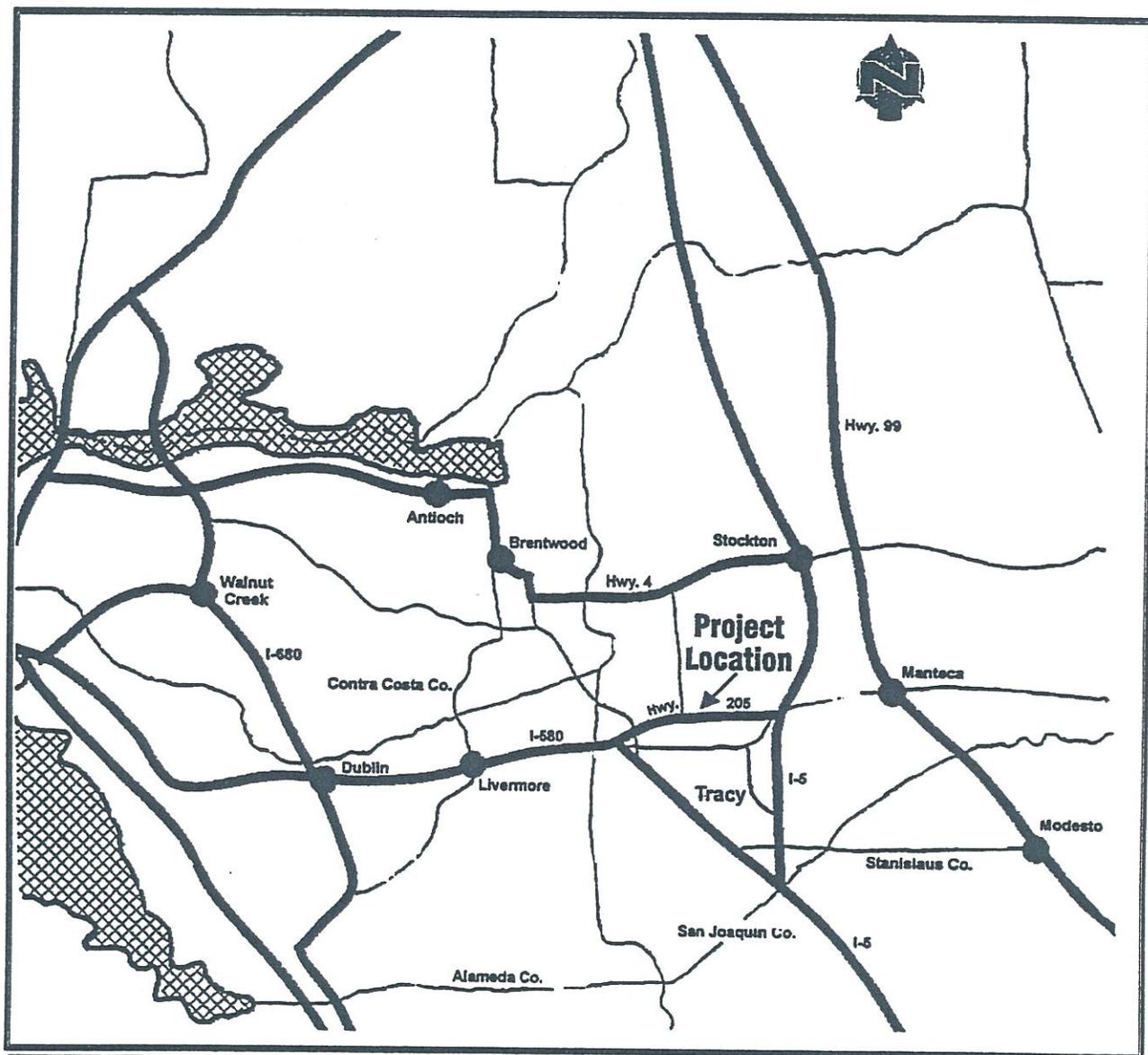


FIGURE 1  
REGIONAL LOCATION

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In 1947, modifications to the plant expanded on its primary, secondary, and solids treatment capability when primary and secondary clarifiers, a new trickling filter, and an anaerobic digester were added.

During the mid-1970s, the combination of continued population growth and the promulgation of new water pollution control standards by the US Environmental Protection Agency (USEPA) required another plant expansion, which resulted in the improvement of numerous treatment facilities. Grit removal was improved through the addition of a new headworks facility; secondary treatment was upgraded by adding biofilters, aeration basins, rectangular clarifiers, and chlorine contact tanks; solids handling was improved through the addition of a sludge holding tank and a flotation thickener. A laboratory, utility building, and an auxiliary generator building were also constructed.

To date, the most recent improvements to the plant were constructed in 1985 through 1987, which upgraded the solids handling facility and increased the plant's design flow capacity from 5.5 to 9.0 MGD. The City is currently undertaking improvements that consist of the replacement of clarifier and pumping units as well as relocation of the laboratory facilities in order for the plant to fully utilize its permitted capacity of 9.0 MGD. This improvement project is currently under a separate project-level CEQA review. **Figure 2** provides an overview of plant facilities.

#### SERVICE AREA

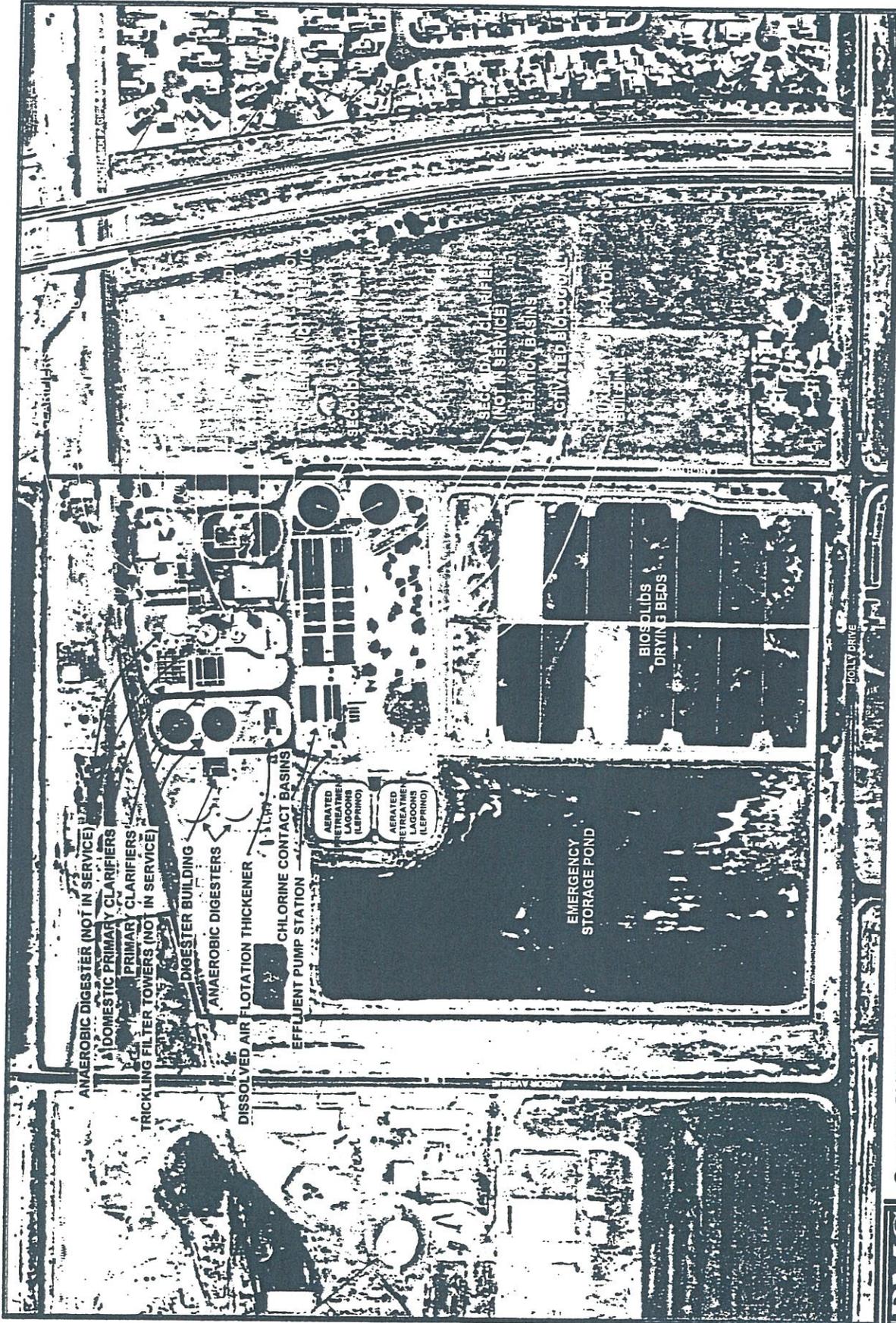
The City of Tracy provides wastewater collection, treatment, and disposal for residences, businesses and industries within its service area. The City's service area is shown in **Figure 3**. An average of approximately 6.0 MGD of domestic wastewater is currently generated within the service area. Additionally, Leprino Foods is currently the only significant wet industry discharging in the City and currently discharges on the order of 0.5 MGD of food process water to the plant. Prior to 1997, Heinz Foods discharged approximately 2.6 MGD of tomato wastewater into the WWTP, which resulted in over 8.0 MGD in wastewater flows at the plant. However, the Heinz plant is currently not in operation.

#### EXISTING WASTEWATER TREATMENT FACILITIES

At the Tracy WWTP, the domestic wastewater from the City and wastewater from Leprino is sent through a series of sequential treatment processes to achieve the desired effluent quality, which is currently a secondary level of treatment. A process flow diagram for the WWTP is shown as **Figure 4**. As shown, the major unit processes are categorized into primary treatment, secondary treatment, effluent disposal, and solids handling. These unit processes are more fully described in **Table 1**.

The purpose of primary treatment is to remove large objects, grit, and easily settleable solids. The process consists of mechanical and manually operated bar screens to remove debris and large objects in the wastewater and is followed by an aerated grit chamber that captures sand and grit materials, which would otherwise damage downstream pumps. Readily settleable materials are removed at the primary clarifiers. Screenings and grit are hauled offsite to land disposal.

After primary clarification, primary effluent is conveyed to secondary treatment which oxidizes organic material within the wastewater. The WWTP utilizes an activated biological filter (ABF) and an activated sludge system. In this process, microorganisms reduce the organic concentration of the wastewater by converting the organic material to additional microbial biomass. Once the



Source: CH2MHILL, 1999



FIGURE 2  
EXISTING WASTEWATER TREATMENT PLANT FACILITIES

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Insert Figure 3, Service Area Figure

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insert Figure 4, flow diagram

organic concentration has been reduced, the biomass is settled out of the wastewater in secondary clarifiers.

Wastewater after secondary clarification is then disinfected using chlorine then dechlorinated with sulfur dioxide (SO<sub>2</sub>) to remove residual chlorine concentrations. The treated effluent is then pumped 3.5 miles north of the WWTP and discharged through a submerged outfall in the Old River (see Figure 5). Additionally, the plant also maintains an emergency storage pond with a 24 million gallon (MG) capacity for emergency flow diversion.

Solids collected from primary and secondary clarifiers are then thickened and digested. The solids are first thickened using dissolved air flotation thickeners and then digested in anaerobic digesters. As a final step, the digested biosolids are transported to drying beds for dewatering. When the solids have been sufficiently dewatered, the biosolids are hauled off-site for beneficial reuse and application as soil amendments.

**TABLE 1**  
**TREATMENT PROCESSES CURRENTLY IN USE AT THE CITY OF TRACY WWTP**

Unit Processes in Service	Description
<i>Primary Treatment</i>	
Headworks	3 trains each with dedicated Parshall flumes 3 mechanical bar screen units, 1 manually-cleaned screen 2 aerated grit chambers
Primary Clarifiers	2 rectangular clarifiers (each 32 ft × 72 ft × 9 ft sidewater depth) 2 rectangular clarifiers (each 18 ft × 126 ft × 13 ft sidewater depth)
<i>Secondary Treatment</i>	
Activated Biological Filter Towers	2 towers (each 52 ft × 48 ft × 22.5 ft media depth)
Aeration Basins	4 basins (each 52 ft × 52 ft × 17 ft sidewater depth)
Secondary Clarifiers	2 circular clarifiers (each 100 ft dia. × 14 ft sidewater depth) 2 rectangular clarifiers (each 25 ft W × 100 ft L × 10 ft sidewater depth) <sup>1</sup>
<i>Effluent Disposal</i>	
Chlorine Contact Basins	2 parallel basins at 110,000 gallons 2 parallel basins at 106,000 gallons
Effluent Pumping	2 pumps at 3,500 gallons per minute each 2 pumps at 6,000 gallons per minute each
<i>Solids Handling</i>	
Dissolved Air Flotation Thickener	2 basins (each 39 ft-9 in L × 10 ft-8.5 in W)
Anaerobic Digesters	2 tanks (75 ft dia. × 27 ft operational depth)
Drying Beds	16 beds (476,000 sq-ft total area)

<sup>1</sup>These facilities are currently being replaced.

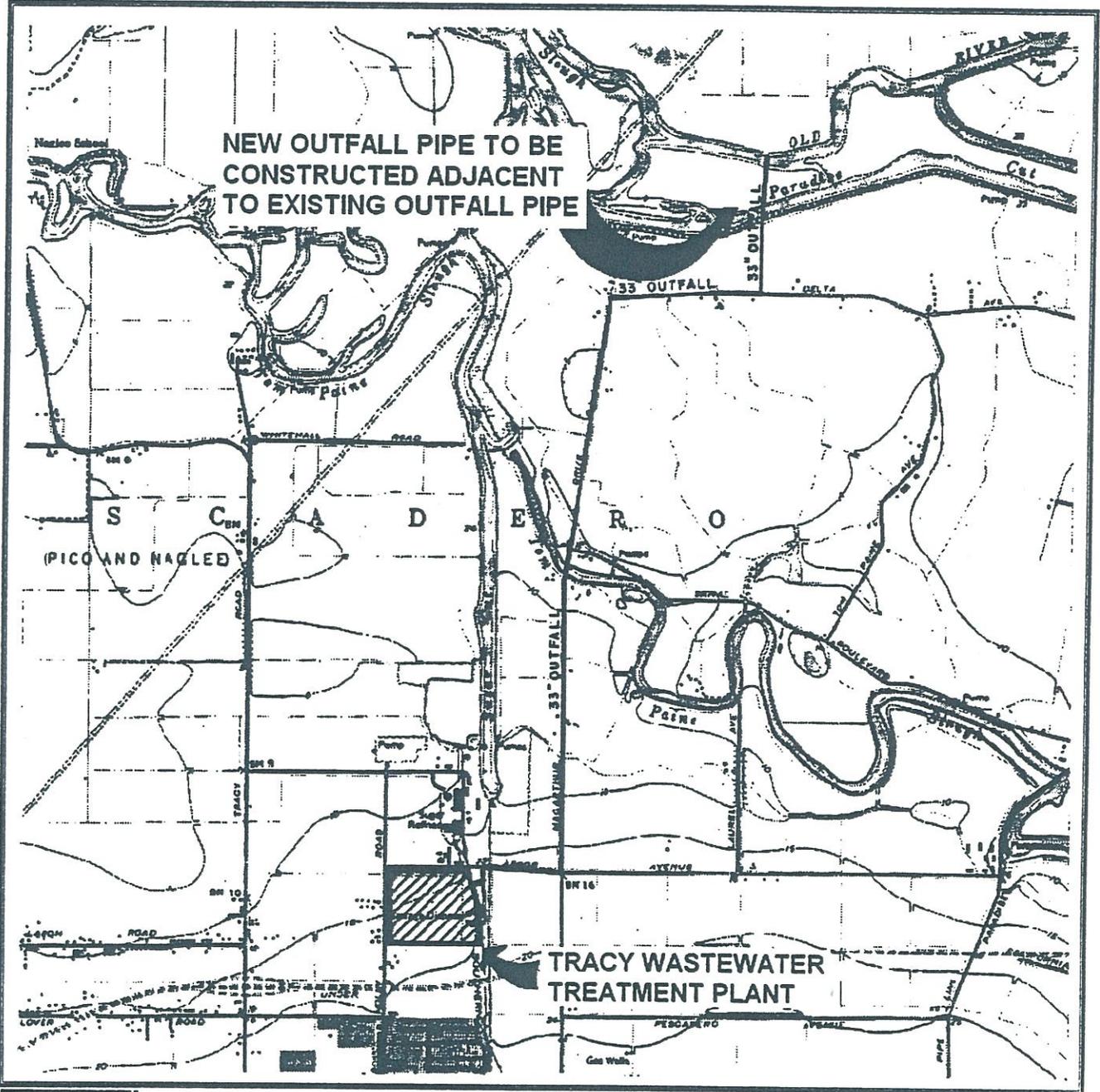


FIGURE 5  
EXISTING AND PROPOSED NEW OUTFALL ALIGNMENT

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## EXISTING DISCHARGE PERMIT REQUIREMENTS

Operation of the WWTP must currently comply with the effluent limitations mandated by its existing National Pollutant Discharge Elimination System (NPDES) permit (Number CA0079154). This permit, administered by the Regional Water Quality Control Board (RWQCB), prescribes maximum allowable discharge rate, effluent quality requirements, discharge prohibitions, receiving water limitations, pretreatment program requirements, biosolids disposal requirements, and self-monitoring requirements.

Under the terms of the NPDES permit, the City may discharge an average dry weather flow (ADWF) of up to 9.0 MGD of secondary-treated effluent to Old River in the southern Sacramento-San Joaquin Delta. Effluent discharges must comply with the concentration limits outlined in **Table 2**.

**TABLE 2**  
**CURRENT EFFLUENT LIMITATIONS FOR THE TRACY WWTP**

Constituents	Units	Average Monthly	Average Weekly	30-Day Median	Daily Maximum
BOD <sub>5</sub>	mg/L	20	40	--	50
Total Suspended Solids	mg/L	20	40	--	50
Settleable Matter	mg/L	0.1	--	--	0.2
Chlorine Residual	mg/L	--	--	--	0.1
Oil and Grease	mg/L	10	--	--	15
Total Coliform Organisms	MPN/100 mL	--	--	23	500

*mg/L:* milligrams per liter  
*MPN:* most probable number  
*mL:* milliliters

In addition to these effluent requirements, the permit also established several additional numerical and qualitative effluent limits including the following conditions:

- Discharge shall not cause the dissolved oxygen concentration in Old River to fall below 5.0 mg/L.
- Discharge shall not cause a turbidity increase of more than 10 percent over background levels.
- Discharge shall not create a zone of temperature increase exceeding 1° Fahrenheit, which exceeds more than 25 percent of the area of the stream. Also, the discharge shall not cause a temperature rise greater than 4° Fahrenheit in the receiving water.
- Discharge shall not cause the following on the receiving waters:
  - Visible oil, grease, scum, foam, floating or suspended material.
  - Concentrations of materials that are deleterious to human, animal, aquatic, or plant life.

- 
- Aesthetically undesirable discoloration of the receiving waters.
  - Fungus, slimes, or other objectionable growths.
  - Bottom deposits.
  - Violation of any applicable water quality standard as required by the Clean Water Act.

#### PURPOSE AND NEED FOR THE PROJECT

The purpose of the proposed project is to provide adequate wastewater treatment capabilities sufficient to treat wastewater flows that would be generated by existing and planned future populations within the City of Tracy service area. Build out of the Tracy area under the City of Tracy Urban Management Plan/General Plan is anticipated to result in a projected population of approximately 162,000.

Wastewater flows into the plant will increase proportionately as the City's population increases. In the summer of 1999, the combined flow from domestic users and Leprino Foods was approximately 6.5 MGD. Based on the growth projections, the plant's capacity will be exceeded before the year 2005. The project is needed to expand the plant capacity beyond 9.0 MGD to handle additional wastewater from the City of Tracy service area. This expansion to 16 MGD is anticipated to accommodate approximately 15 MGD (approximately 20,000 equivalent consumer units [ECUs]) of future planned domestic flows and 0.85 MGD of future Leprino flows.

The proposed wastewater treatment plant expansion to 16 MGD is only one component for accommodating wastewater service for long-term planned development in the Tracy service area. Build out of land uses identified in the City of Tracy Urban Management Plan (UMP) is anticipated to generate a wastewater demand of approximately 32.5 MGD. Thus, this expansion project would only support a portion of planned development under the UMP. Other projects that would provide additional wastewater service to the City to serve UMP build out includes the proposed Tracy Hills Permanent Wastewater Reclamation Facility (5.2 MGD), further expansion of the City's wastewater treatment plant and satellite treatment plants.

#### **D. DESCRIPTION OF THE PROPOSED PROJECT**

The existing WWTP provides secondary treatment and disinfection before discharging to Old River and has a design flow capacity of 9.0 MGD. Over the next decade, new commercial and residential development within Tracy is expected to increase the average wastewater flow to the plant from 6.5 to 16.0 MGD. The proposed project will increase plant capacity by installing additional facilities, while simultaneously upgrading the plant in anticipation of more stringent effluent discharge requirements.

#### INCREASE IN WWTP CAPACITY

There is adequate land area at the existing WWTP site to accommodate additional plant facilities to increase capacity to 16.0 MGD. In addition, the WWTP can be readily expanded within existing facility footprints by adding additional unit processes. For example, additional primary clarifier capacity can be acquired by constructing an additional clarifier directly adjacent to the

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existing primary clarifier, as opposed to siting the facility at a more distant location as a result of space constraints. The increase in capacity may also require an additional outfall pipeline to convey the treated effluent to the Old River. The following major projects have been identified to increase the WWTP capacity to treat 16.0 MGD:

- Expanded headworks to include additional screens and grit removal facilities.
- Additional primary clarifiers and rehabilitation of the existing industrial clarifiers to handle domestic flows.
- Reconfiguration of the biotowers and trickling filters to treat domestic-strength wastes.
- Additional aeration basins and aeration system.
- Additional circular secondary clarifiers and return sludge pumping station.
- Expanded chlorination/dechlorination system and additional chlorine contact tanks.
- Expanded effluent pump station and new 3.5 mile outfall to Old River. The potential new outfall may be constructed adjacent to the existing plant outfall (see **Figure 5**).
- Additional dissolved air floatation thickeners.
- Additional anaerobic digesters.
- Use of additional sand drying beds onsite. The existing beds are only partially utilized.

#### POSSIBLE ADDITIONAL FACILITIES IN RESPONSE TO FUTURE REGULATORY REQUIREMENTS

The City's WWTP currently provides secondary-level treatment before discharge to Old River. Future NPDES discharge limitations may, however, require further reduction of treated effluent pollutant levels. Analyses are currently being conducted to define the level of treatment required for the expanded plant. Possible future treatment requirements and associated facilities are presented in **Table 3**. The facilities shown in this table are in addition to those required to increase the plant's capacity.

If tertiary-level treatment is required, filtration facilities would be added after secondary clarification to further reduce BOD and total suspended solids (TSS) of the treated effluent from an average of 30 mg/L to 10 mg/L, and effluent turbidities to below 2 NTU. Filtration facilities include chemical conditioning of the effluent with polymers and coagulants followed by sand filtration. If ammonia removal is required, the secondary treatment facilities would be expanded to include additional aeration basins to provide complete nitrification of the secondary effluent.

It is possible that treatment beyond tertiary-level and ammonia removal would be required. Known as advanced treatment, these facilities would be determined based on the specific pollutants to be removed.

Any additional facilities required for treatment beyond the existing secondary-level (as outlined in **Table 3**) would be accommodated on the existing WWTP site. The proposed project currently

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assumes continued secondary-level of treatment and could include filtration and ammonia removal, pending ongoing engineering analysis to determine future receiving water limitations.

**TABLE 3**  
**POSSIBLE FUTURE LEVEL OF TREATMENT AND REQUIRED FACILITIES**

Level of Treatment Provided	Required Facilities
Secondary-level treatment (existing)	Facility expansion in-kind
Tertiary-level treatment	Filtration facilities
Secondary-level treatment and ammonia removal	Additional aeration basins
Tertiary-level treatment and ammonia removal	Filtration, additional aeration basins

**E. REQUIRED TASKS**

In order for the project to be implemented, a series of actions and approvals would be required from several public agencies. Such actions may include, but are not limited to, the following:

*City of Tracy:* Actions that would be required from the City Council, Planning Commission and/or City staff would include approval of engineering details and plans associated with the WWTP Expansion. In addition, the City may also acquire easements for the new outfall alignment to the Old River.

*San Joaquin County Department of Public Health Services:* Approval of permits and plans associated with storage and handling of hazardous materials for operation of the expanded WWTP.

*Regional Water Quality Control Board, Central Valley Region (RWQCB):* Approval of new or modified National Pollutant Discharge Elimination System (NPDES) permit associated with expanded effluent discharges into the Old River. A Water Certification or Waiver from the RWQCB may also be required for the new Old River outfall facility, pursuant to Section 401 of the Clean Water Act.

*California Department of Fish and Game (CDFG):* Approval of a Streambed Alteration Agreement with the CDFG for the new Old River outfall facility, pursuant to Section 1600 of the Fish and Game Code.

*U.S. Army Corps of Engineers:* Approval of permit for the placement of fill into jurisdictional waters of the U.S. for the new Old River outfall facility, pursuant to Section 404 of the Clean Water Act.

**F. POTENTIAL ENVIRONMENTAL EFFECTS**

See attached Initial Study.

# Initial Environmental Study

1. **Project Title:** City of Tracy Wastewater Treatment Plant (WWTP) Expansion
2. **Lead Agency Name and Address:**  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376
3. **Contact Person and Phone Number:** Robert Conant, Senior Planner. (209) 831-4600
4. **Project Location:** The project site is located on the corner of Larch Road and Holly Drive, within the northern portion of the City of Tracy Urban Management Plan (UMP) area within City limits.
5. **Project Sponsor's Name and Address:** City of Tracy, 520 Tracy Blvd., Tracy, CA 95376
6. **General Plan Designation(s):** Public Facilities
7. **Zoning:** M1 (Light Industrial)
8. **Description of the Project:** See attached Notice of Preparation.
9. **Surrounding Land Uses and Setting:** Current land uses in the project area are primarily industrial, including the Holly Sugar refining facility and a scrap metal recycling facility. Adjacent agricultural land is planted in alfalfa.
10. **Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement).**  
City of Tracy  
San Joaquin Valley Air Pollution Control District  
San Joaquin County Department of Public Health Services  
Regional Water Quality Control, Central Valley Region (RWQCB)  
California Department of Fish and Game (CDFG)  
U.S. Army Corps of Engineers

## ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Aesthetics                           | <input type="checkbox"/> Agriculture Resources                         | <input checked="" type="checkbox"/> Air Quality            |
| <input checked="" type="checkbox"/> Biological Resources      | <input checked="" type="checkbox"/> Cultural Resources                 | <input checked="" type="checkbox"/> Geology/Soils          |
| <input checked="" type="checkbox"/> Hazards & Hazardous Mat.  | <input checked="" type="checkbox"/> Hydrology/Water Quality            | <input checked="" type="checkbox"/> Land Use/Planning      |
| <input type="checkbox"/> Mineral Resources                    | <input checked="" type="checkbox"/> Noise                              | <input checked="" type="checkbox"/> Population/Housing     |
| <input checked="" type="checkbox"/> Public Services           | <input type="checkbox"/> Recreation                                    | <input checked="" type="checkbox"/> Transportation/Traffic |
| <input checked="" type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance |  |

**DETERMINATION**

(To be completed by the Lead Agency)

On the basis on this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but must analyze only the effect that remains to be addressed.

I find that, although the proposed project could have a significant effect on the environment, there will NOT be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project.

  
\_\_\_\_\_  
Signature

PATRICK AUGER  
\_\_\_\_\_  
Printed Name

JANUARY 12 2000  
\_\_\_\_\_  
Date

ROBERT COVANT  
\_\_\_\_\_  
For

## PURPOSE OF THIS INITIAL STUDY

This Initial Study has been prepared consistent with CEQA Guidelines Section 15063, to determine if development of the Tracy Wastewater Treatment Plant Expansion, as proposed, may have a significant effect upon the environment. Based upon the findings contained within this report, the Initial Study will be used in support of the preparation of an Environmental Impact Report.

## EVALUATION OF ENVIRONMENTAL IMPACTS

(Based upon the 1998 update to the CEQA Guidelines)

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards.
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect, and construction as well as operational impacts.
3. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact". The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). Earlier analyses are discussed in Section XVII at the end of the checklist.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. A source list should be attached and other sources used or individual contacts should be cited in the discussion.

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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**I. AESTHETICS.** Would the project:

- |  |                          |                          |                                     |                          |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Have a substantial adverse effect on a scenic vista?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**II. AGRICULTURE RESOURCES.** In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

- |  |                          |                          |                                     |                          |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**III. AIR QUALITY.** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

- |   |                                     |                          |                                     |                          |
|---|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations?  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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**IV. BIOLOGICAL RESOURCES.** Would the project:

- |   |                                     |                          |                                     |                                     |
|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| c) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption or other means?                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?   | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**V. CULTURAL RESOURCES.** Would the project:

- |  |                                     |                          |                          |                          |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of formal cemeteries?                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**VI. GEOLOGY AND SOILS.** Would the project:

- |  |  |  |  |  |
|--|--|--|--|--|
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death, involving: |  |  |  |  |
|--|--|--|--|--|

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:**

a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**VIII. HYDROLOGY AND WATER QUALITY. Would the project:**

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>IX. LAND USE AND PLANNING. Would the project:</b>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>X. MINERAL RESOURCES. Would the project:</b>				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>XI. NOISE. Would the project result in:</b>				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>XII. POPULATION AND HOUSING. Would the project:</b>				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XIII. PUBLIC SERVICES.** Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**XIV. RECREATION.**

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XV. TRANSPORTATION/TRAFFIC.** Would the project:

a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:**

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**XVII. MANDATORY FINDINGS OF SIGNIFICANCE**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## DISCUSSION OF IMPACTS

### I. AESTHETICS

- a) **Would the project have a substantial adverse effect on a scenic vista?**

*Less Than Significant Impact.* The proposed project is located on the site of the existing wastewater treatment plant. The project will not result in any significant additional alterations to scenic vistas on the project site. Impacts to any scenic vista or resource from construction of the new Old River outfall would be temporary and are expected to be negligible.

- b) **Would the project substantially damage scenic resources, including, but not limited to, rock outcroppings, and historic buildings within a state scenic highway?**

*Less Than Significant Impact.* See (a) above.

- c) **Would the project substantially degrade the existing visual character or quality of the site and its surroundings?**

*Less Than Significant Impact.* See (a) above.

- d) **Create a new source of substantial light and glare that would adversely affect day or nighttime views in the area?**

*Less Than Significant Impact.* The existing WWTP is located within an industrial area and the potential addition of new light fixtures are not anticipated to result in any adverse lighting and glare impacts on any sensitive receptors (e.g., residential uses).

### II. AGRICULTURE RESOURCES

- a) **Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

*Less Than Significant Impact.* The proposed project is located on the site of the existing wastewater treatment plant. Impacts to agricultural land may occur during placement of the new Old River outfall alignment (possibly constructed adjacent to the existing outfall line), however, these would be temporary in nature. No substantial conversion of agricultural land would result from placement of the new Old River outfall.

- b) **Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?**

*Less Than Significant Impact.* No permanent conflict with agricultural zoning or Williamson Act contracts are expected to result from placement of the new Old River outfall. Temporary impacts would be considered negligible. See (a) above.

- c) **Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses?**

*Less Than Significant Impact.* See (a and b) above.

### III. AIR QUALITY

- a) **Would the project conflict with or obstruct implementation of the applicable air quality plan?**

*Potentially Significant Impact.* The proposed project is located on the site of the existing wastewater treatment plant. Expansion of the wastewater treatment plant may result in additional air pollutant emissions from construction and operation activities that could obstruct air quality improvement efforts by the San Joaquin Valley Air Pollution Control District. This issue will be addressed in the EIR.

- b) **Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

*Potentially Significant Impact.* See (a) above.

- c) **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?**

*Potentially Significant Impact.* See (a) above.

- d) **Would the project expose sensitive receptors to substantial pollutant concentrations?**

*Less Than Significant Impact.* Operation of the expanded wastewater treatment plant may result in increased production of carbon monoxide and nitrogen oxide emissions. However, the project is not anticipated to routinely release toxic air contaminants.

- e) **Would the project create objectionable odors affecting a substantial number of people?**

*Potentially Significant Impact.* Operation of the expanded wastewater treatment plant may result in the increased generation of objectionable odors that could impact project area residents. This issue will be further addressed in the EIR.

### IV. BIOLOGICAL RESOURCES

- a) **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

*Potentially Significant Impact.* The proposed project is located on the site of the existing wastewater treatment plant. However, construction of the new Old River outfall alignment could result in impacts to the habitat of special status species known to occur in the Tracy area. These species may include, but are not limited to, the Swainson's hawk (*Buteo swainsoni*) and the burrowing owl (*Athene cunicularia*). Additional impacts to special status plant and animal species may result from discharge of wastewater effluent into the Old River and its associated tributaries, which could impact water quality and habitat improvement efforts for the Sacramento/San Joaquin Delta (e.g. CALFED). This issue will be addressed in the EIR.

- b) **Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

*Potentially Significant Impact.* Implementation of the project could potentially result in the disturbance of habitat along the Old River. This issue will be addressed in the EIR.

- c) **Would the project have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetland, etc.), through direct removal, filling, hydrological interruption or other means?**

*Potentially Significant Impact.* The project could directly or indirectly impact wetland areas and waters of the United States (e.g. Old River) in the project area. This issue will be addressed in the EIR.

- d) **Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

*Potentially Significant Impact.* See (a, b, and c) above.

- e) **Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

*Less Than Significant Impact.* No conflict with local resource policies is predicted.

- f) **Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?**

*No Impact.* The proposed project is not presently located within an area subject to a habitat conservation plan or natural community conservation plan. San Joaquin County is currently in the process of developing a countywide habitat conservation plan, however, it has not yet been adopted.

## V. CULTURAL RESOURCES

- a) **Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?**

*Potentially Significant Impact.* Although significant cultural resources are not known to occur near the existing wastewater treatment plant, the potential exists that such resources may be present below the land surface where the new Old River outfall alignment would be located. This issue will be addressed in the EIR.

- b) **Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?**

*Potentially Significant Impact.* See above (a).

- c) **Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

*Potentially Significant Impact.* See above (a).

- d) **Would the project disturb any human remains, including those interred outside of formal cemeteries?**

*Potentially Significant Impact.* See above (a).

## VI. GEOLOGY AND SOILS

- a) **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:**

- i) **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?**

*Less than Significant.* No active faults have been identified within this project area by previous environmental assessments. Potentially active and active faults in the TPA include Black Butte, Midway and Carnegie Corral Hollow. These faults are located over five miles from the project area.

- ii) **Strong seismic ground shaking?**

*Potentially Significant Impact.* While fault rupture is not expected to occur, the project may experience moderate to severe ground shaking. This issue will be addressed in the EIR.

- iii) **Seismic-related ground failure, including liquefaction?**

*Potentially Significant Impact.* The UMP/GP EIR identifies the project area as having high liquefaction potential. This issue will be addressed in the EIR.

- iv) **Landslides?**

*No Impact.* The project is located on relatively flat terrain and is not near any hills or other areas that are prone to landslides.

- b) **Would the project result in substantial soil erosion or the loss of topsoil?**

*Potentially Significant Impact.* Grading activities associated with project construction may expose the soil to wind and water erosion that could impact the Old River and its associated tributaries. This issue will be addressed in the EIR.

- c) **Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

*Potentially Significant Impact* See (a) subsections (i-iii) above.

- d) **Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

*Potentially Significant Impact* The project is located within an area known to have soils with moderate to high expansion potential. This issue will be addressed in the EIR.

- e) **Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

*No Impact.* This project consists of an expansion of the existing wastewater treatment plant and would not involve the use of a septic system.

## VII. HAZARDS AND HAZARDOUS MATERIALS

- a) **Would the project create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?**

*Potentially Significant Impact.* Operation of the expanded wastewater treatment plant may involve the use of gaseous chlorine, alum, diesel fuel, hydrogen peroxide, liquid polymer, liquid sodium bisulfite, liquid sodium hydroxide, liquid sodium hypochlorite, and soda ash. The EIR will address potential hazards associated with the handling of these materials.

- b) **Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

*Potentially Significant Impact.* See (a) above.

- c) **Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?**

*No Impact.* The expanded wastewater treatment plant would not be located within one-quarter mile of any existing or future school in the project area.

- d) **Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

*No Impact.* The project site is not included on the Hazardous Waste and Substances Sites List as set forth in Government Code Section 65962.5.

- e) **For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?**

*No Impact.* The project site is not located within an airport land use plan, or within two miles of a public airport.

- f) **For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?**

*No Impact.* There are no private airstrips in the project vicinity.

- g) **Would the project impair implementation of physically interfere with an adopted emergency response plan or emergency evacuation plan?**

*Less Than Significant.* Expansion of the wastewater treatment plant is not expected to interfere with emergency response activities.

- h) **Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

*No Impact.* The project is not located within an area that is exposed to substantial wildland fire hazards.

## VIII. HYDROLOGY AND WATER QUALITY

- a) **Would the project violate any water quality standards or waste discharge requirements?**

*Less Than Significant Impact.* Effluent from the expanded wastewater treatment plant will be required to comply with local, state and federal standards. However, the EIR will evaluate surface water quality issues associated with the Old River and the project's relationship to water quality improvement efforts for the Sacramento/San Joaquin Delta (e.g. CALFED).

- b) **Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?**

*Less Than Significant:* Operation of the expanded wastewater treatment plant will not affect groundwater resources.

- c) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off-site?**

*Potentially Significant Impact.* Construction of the new Old River outfall facility may impact surface water quality. This issue will be addressed in the EIR.

- d) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?**

*Less Than Significant Impact.* While expansion of the WWTP and construction of the new Old River outfall would result in some modifications to area drainage patterns, these new facilities are not expected to substantially alter existing drainage patterns or flooding conditions.

- e) **Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

*Potentially Significant Impact.* See (c) above.

- f) **Would the project otherwise substantially degrade water quality?**

*Potentially Significant Impact.* See (c) above.

- g) **Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?**

*No Impact.* The project does not include any residential development.

- h) **Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?**

*Less Than Significant Impact.* The existing wastewater treatment plant is located outside of the 100-year flood plain of the Old River and Paradise Cut, but is within the 500-year floodplain. The proposed new Old River outfall facility is expected to be designed to withstand high flow conditions along the Old River.

- i) **Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?**

*Less Than Significant Impact.* See (h) above.

- j) **Would the project expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami or mudflow?**

*No Impact.* The project facilities are not located near any large bodies of water that would pose a seiche or tsunami hazard. The project area is not near any physical or geologic features that would pose a mudflow hazard.

## IX. LAND USE AND PLANNING

- a) **Would the project physically divide an established community?**

*No Impact.* The project would not result in the division of an established community.

- b) **Would the project conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

*Less Than Significant Impact.* Expansion of the existing wastewater treatment plant is assumed under the UMP/GP, and extension of the new Old River outfall is not expected to conflict with San Joaquin County land use policies and standards. However, this issue will be addressed in the EIR.

- c) **Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?**

*No Impact.* The proposed project is not presently located within an area subject to a habitat conservation plan or natural community conservation plan. San Joaquin County is currently in the process of developing a countywide habitat conservation plan, however, it has not yet been adopted.

## X. MINERAL RESOURCES

- a) **Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

*Less Than Significant Impact.* The proposed project is located on the site of the existing wastewater treatment plant. The project will not result in any significant additional loss of availability of a known mineral resource.

- b) **Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?**

*Less than Significant Impact.* See above (a).

## XI. NOISE

- a) **Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?**

*Less Than Significant Impact.* The proposed project is located on the site of the existing wastewater treatment plant. Expansion of the wastewater treatment plant would result in similar noise levels as existing conditions. Construction activities would produce temporary increases in noise levels. While no significant noise impacts to noise-sensitive land uses are expected, this issue will be further evaluated in the EIR.

- b) **Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

*Less Than Significant Impact.* See above (a).

- c) **Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

*Less Than Significant Impact.* See above (a).

- d) **Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

*Less Than Significant Impact.* See above (a).

- e) **For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

*No Impact.* The project site is not located within an airport land use plan, or within two miles of a public airport.

- f) **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

*No Impact.* There are no private airstrips in the project vicinity.

## XII. POPULATION AND HOUSING

- a) **Would the project induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?**

*Less Than Significant Impact.* The proposed project would provide wastewater services for planned urban development expected under the UMP/GP, but is not expected to result in unplanned growth. The EIR will evaluate potential growth-inducing impacts of the project and the indirect environmental effects anticipated to occur as a result of City growth.

- b) **Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**

*No Impact.* Housing would not be displaced by the project.

- c) **Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

*No Impact.* No residents would be displaced by project development.

### XIII. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

a) **Fire protection?**

*Less than Significant Impact.* Operation of the expanded wastewater treatment plant is not expected to result in substantial increased demand for fire protection services.

b) **Police protection?**

*Less than Significant Impact.* Operation of the expanded wastewater treatment plant is not expected to result in substantial increased demand for law enforcement services.

c) **Schools?**

*Less than Significant Impact.* The project would not directly result in the increased demand for school services.

d) **Parks?**

*Less than Significant Impact.* Development of the project would not result in the increased demand for park services.

e) **Other public facilities?**

*Less than Significant Impact.* The project is not anticipated to result in a substantially increased demand for general public and governmental services provided by the City.

### XIV. RECREATION

a) **Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

*No Impact.* Development of the project would not result in demand for park or recreational services or facilities.

b) **Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?**

*No Impact.* Recreational facilities are not included as part of this project.

### XV. TRANSPORTATION/TRAFFIC

a) **Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?**

*Potentially Significant Impact.* While operation of the expanded wastewater treatment plant is anticipated to generate a minor amount of traffic, construction activities associated with the facility may result in temporary traffic impacts as well as potential damage to roadway facilities as a result vehicles and equipment. The magnitude of traffic impacts will be evaluated in the EIR.

- b) **Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?**

*Potentially Significant Impact.* See (a) above.

- c) **Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

*No Impact.* The project will not affect air traffic patterns.

- d) **Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

*Less Than Significant Impact.* The project would not affect roadway or transportation design features.

- e) **Would the project result in inadequate emergency access?**

*Less Than Significant Impact.* Construction and operation of the expanded wastewater treatment plant is not expected to interfere with emergency response activities.

- f) **Would the project result in inadequate parking capacity?**

*Less Than Significant Impact.* It anticipated that parking demands for expanded wastewater treatment plant would be minor.

- g) **Would the project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?**

*Less than Significant Impact.* The proposed project is not anticipated to conflict with alternative transportation programs.

## XVI. UTILITIES AND SERVICE SYSTEMS

- a) **Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

*Less Than Significant Impact.* The project would be required to be consistent with RWQCB standards. However, the EIR will describe the project's compliance with RWQCB standards and other requirements associated with the protection of the Sacramento/San Joaquin Delta.

- b) **Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

*Potentially Significant Impact.* As described in this initial study, the expansion of the wastewater treatment plant may result in significant environmental impacts.

- c) **Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

*Less Than Significant Impact.* While expansion of the WWTP and construction of the new Old River outfall would result in some modifications to local drainage patterns, these new facilities are not expected to substantially alter existing drainage patterns or flooding conditions.

- d) **Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

*Less than Significant Impact.* Operation of the expanded wastewater treatment plant is not expected to utilize a substantial amount of water.

- e) **Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?**

*Less Than Significant Impact.* The project's primary goal is to provide additional capacity for citywide growth under the UMP/GP.

- f) **Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

*Less Than Significant Impact.* Expansion of the wastewater treatment plant would increase the amount of sludge (biosolids) currently generated. However, disposal of screened and grit solids is not expected to exceed the permitted capacity of the landfill disposal site and biosolids would continue to be utilized for land application in Alameda County.

- g) **Would the project comply with federal, state and local statutes and regulations related to solid waste?**

*Less Than Significant Impact.* All solid waste disposed would comply with all local, state and federal statutes and requirements related to solid waste.

## XVII. MANDATORY FINDINGS OF SIGNIFICANCE

- a) **Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?**

*Potentially Significant Impact.* Construction and operation of the project has the potential to significantly impact biological resources (including special-status species) and cultural resources are discussed in Sections IV and V of this Initial Study. These issues will be addressed in the EIR.

- b) **Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, the effects of probable future projects.**

*Potentially Significant Impact.* As discussed in within the Initial Study, the project may contribute cumulatively future conditions or exacerbate existing environmental conditions. Air quality, biological resources, and water quality are the primary areas of cumulative impact. Each area will be analyzed within the EIR.

- c) **Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?**

*Potentially Significant Impact.* Potential adverse effects on human beings may occur with through exposure to hazardous materials or conditions and the deterioration of air quality. Each area will be analyzed within the EIR.

#### REFERENCES

The following referenced documents are available at the City of Tracy Development and Engineering Services Department at 520 Tracy Boulevard, Tracy, CA 95376.

City of Tracy, 1994. *Wastewater Master Plan*. Tracy, California. 1994.

City of Tracy, 1993. *City of Tracy Urban Management Plan/General Plan Final EIR, State Clearinghouse No. 91092060*. Tracy, California. 1993.



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846

IN REPLY REFER TO:  
1-1-00-TA-0821

FEB 15 2000  
REC'D  
Comm. & Dev.

Mr. Robert Conant, Senior Planner  
City of Tracy  
520 Tracy Boulevard  
Tracy, California 95376

Subject: Notice of Preparation of an Environmental Impact Report for the City of Tracy  
Wastewater Treatment Plant (WWTP) Expansion

Dear Mr. Conant:

We have reviewed the referenced Notice of Preparation (NOP) regarding the proposed expansion of the City of Tracy's (City) Wastewater Treatment Plant (WWTP). Because the implementation of this project will result in impacts to federally-listed species and their habitats, we are providing comments as a Federal agency involved in project approval pursuant to our responsibilities under the Endangered Species Act of 1973 (Act), as amended, and Section 15082 of the California Environmental Quality Act guidelines.

The WWTP provides secondary treatment and disinfection of effluent, which is then pumped 3.5 miles north of the facility and discharged through a submerged outfall in the Old River. Currently, the plant has a design flow capacity of 9 million gallons per day (MGD), but treats only approximately 6.5 MGD of domestic and industrial wastewater. Over the next decade, however, new commercial and residential development within the City is expected to increase the average wastewater flow to the plant from 6.5 to 16.0 MGD. Hence, the City is proposing to expand the capacity of the WWTP to 16 MGD. This expansion would accommodate approximately 15 MGD (approximately 20,000 equivalent customer units) of future planned domestic flows and 0.85 MGD of future industrial flows.

The proposed expansion will increase plant capacity by installing additional facilities, while simultaneously upgrading the plant in anticipation of more stringent effluent discharge requirements. Proposed modifications include expanded headworks and effluent pump station, reconfiguration of biotowers and trickling filters, new return pumping station, expanded chlorination/dechlorination system, and additional dissolved air floatation thickeners, chlorine contact tanks, primary and secondary clarifiers, anaerobic digesters, aeration basins, and sand drying beds. These modifications and additional facilities would be accommodated on the existing WWTP site. However, the increase in capacity may also require an additional outfall pipeline to convey the treated effluent to Old River.

Our primary concern and mandate is the protection of public fish and wildlife resources and their habitats. Section 9 of the Act prohibits the "take" (e.g., harm, harass, pursue, injure, kill) of federally-listed wildlife species. "Harm" (i.e., "take") is further defined to include habitat modification or degradation that kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Congress established two provisions (sections 7 and 10) that allow for the "incidental take" of endangered species of wildlife by Federal agencies, private interests, and non-Federal government agencies. Incidental take is defined as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Such take requires a permit from the Secretary of the Interior that anticipates a specific level of take for each listed species.

If a proposed project is authorized, funded, or carried out by a Federal agency, and may affect a listed species, then the Federal agency must consult with us on behalf of the applicant, pursuant to section 7 of the Act. In other words, any activity on private land that requires Federal involvement (such as the issuance of a section 404 permit under the Clean Water Act by the U.S. Army Corps of Engineers) and may affect listed species must be reviewed by us to insure that the continued existence of the species would not be jeopardized. During the section 7 process, measures to avoid or minimize for project effects to listed species and their habitat will be identified and incorporated into a biological opinion that includes an incidental take statement that authorizes incidental take by the Federal agency and applicant.

If a proposed project does not involve a Federal agency, but is likely to result in the take of a listed animal species, then the landowner or project proponent should apply for an incidental take permit, pursuant to section 10 of the Act. When an application is made for an incidental take permit, measures to avoid, minimize, or mitigate for effects to listed species and their habitat must be identified and incorporated into a Habitat Conservation Plan. If the Habitat Conservation Plan and the application for the permit meet the issuance criteria, a permit authorizing incidental take can be issued.

We concur with the NOP's finding that the project has the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of threatened or endangered plants or animals. The following specific information and recommendations are offered to assist you in planning for the preservation of sensitive wildlife species and habitat within the project area and in complying with pertinent Federal statutes. In order to facilitate the evaluation of the proposed project from the standpoint of fish and wildlife protection, we request that the Environmental Impact Report contain the following specific information:

- 1) A complete discussion of the purpose and need for the project and each of the project alternatives.
- 2) A complete description of the proposed project, including all practicable alternatives that have been considered to reduce project impacts to sensitive habitat types and fish and wildlife resources. Project alternatives should include proposals with reduced footprints that would further minimize and avoid impacts to biological resources on-site and within the service area.
- 3) An assessment of how this project will affect the implementation of conservation plans and actions in recovery plans published by our agency (e.g., *Recovery Plan for Upland Species of the San Joaquin Valley, California*, Region 1, U.S. Fish and Wildlife Service, Portland, Oregon, 1998).
- 4) Specific acreage and description of the types of riparian, wetland, and other sensitive habitats that may be affected by the proposed project or project alternatives. Maps and tables should be included to summarize such information.
- 5) Description of the biological resources associated with each habitat type. These descriptions should include both qualitative and quantitative assessments of the resources present on the proposed project site and alternatives. This should include complete species lists for all sensitive/rare biological resources on-site. We have enclosed a summary of listed, proposed, and sensitive species that may occur in, or be affected by, projects in quadrangles in the vicinity of the service area for the City's WWTP.
- 6) An assessment of direct, indirect, and cumulative project impacts to fish and wildlife species and associated habitats. Direct impacts are the immediate effects of the project on the species or its

habitat, and include the effects of interrelated and interdependent actions that would not occur but for the proposed project. All facets of the project (e.g., construction, implementation, operation, domestic pets, night lighting) should be included in this assessment. Indirect impacts are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. These impacts may occur outside of the area directly affected by the proposed project. We recommend that you make your cumulative impacts analysis broad enough to include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the area affected by the direct and indirect effects of your project.

- 7) An analysis of how project-induced impacts may fragment and isolate aquatic and terrestrial wildlife and plants at a local and regional scale. This should include a detailed discussion of proposed project impacts on each federally-listed or proposed species that may be affected by the direct or indirect effects of the project.
- 8) Specific plans should be developed to avoid, minimize, and fully offset project-related impacts, including proposals for mitigating the cumulative impacts of direct and indirect habitat loss, degradation, or modification. These plans should be prepared by persons with specific expertise on resident wildlife, native plants, and ecosystems. Each plan should include a detailed monitoring program with provisions for assessing the success of restoration efforts and contingency plans to be implemented if initial efforts are unsuccessful. The plan should also discuss funding assurances and responsible parties that will guarantee the successful implementation of compensation and monitoring programs, and ensure the perpetual conservation of mitigation sites. Issues that should be addressed include restrictions on vehicle and people access, proposed land dedications, monitoring and management programs, control of illegal dumping, restrictions on lighting near the mitigation areas, etc.
- 9) An analysis of the consequences of the project on the hydrology and water quality of all streams and rivers or wetland communities, respectively, within the sphere of influence of the project.
- 10) An assessment of potential impacts to wetlands and jurisdictional waters of the United States. Section 404 of the Clean Water Act prohibits the unauthorized discharge of dredged or fill material into such waters, including wetlands. This section also provides that the U.S. Army Corps of Engineers (Corps) may issue permits for discharges of dredged or fill material into jurisdictional waters and wetlands. Potential areas of Corps jurisdiction should be evaluated and wetlands should be delineated using the methodology set forth in the Corps' Wetland Delineation Manual (Environmental Laboratory 1987). The Environmental Impact Report should disclose all impacts to jurisdictional waters and wetlands, and proposed measures to be taken to avoid impacts, minimize impacts, and mitigate unavoidable impacts.
- 11) Identification of methods to be employed to prevent the discharge and disposal of toxic and/or caustic substances, including oil and gasoline, on the project site especially during construction.
- 12) A thorough analysis of expected noise, pollution, erosion, sedimentation, and light impacts on wildlife, including plant and avian species, and measures to be taken to mitigate any adverse impacts resulting from increased noise and light levels.

We are particularly concerned that the proposed increase in capacity at the WWTP will facilitate private development in the area southwest of the City which, in turn, would adversely affect the San Joaquin kit fox (*Vulpes macrotis mutica*) by constraining an important north-south linkage. It is well-established that the lack of reliable utilities or necessary resources in a given area can retard growth or force it to other areas which are already served. Hence, the increased wastewater treatment capacity resulting from the proposed expansion is in and of itself growth-inducing because it removes a significant impediment to further development in the area. The key issue is not whether human population growth and

Mr. Robert Conant

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development will occur, since we acknowledge that future growth in this region is inevitable. Rather, the issue is whether the increase in capacity will affect the density, distribution, scope, duration, or timing of growth and development in the treatment plant's service area and, as a result, indirectly affect the survival and recovery of listed species. The Environmental Protection Agency's (EPA) position regarding facilities planning and infrastructure development is that the provision of new infrastructure, or any increase in reserve capacity, may influence the amount, distribution, and nature of development. Hence, indirect impacts that will result from the action must be evaluated in environmental analyses and documentation. Using this rationale, the EPA concluded in March 1991 that indirect, growth-related impacts would likely occur as a result of improvements to the greater San Diego secondary sewage treatment system, and that these impacts had to be mitigated (EPA and the Development and Environmental Planning Division, Planning Department, City of San Diego, 1991, Final Environmental Impact Report and Environmental Impact Statement for the Clean Water Program for Greater San Diego Secondary Treatment System Associated Sludge Management Facilities, March 1991, Volume I: Secondary Treatment System). As a result, we recommend that the City of Tracy evaluate the indirect effects of their proposed increase in wastewater treatment capacity on biological resources in the service area, and propose conservation measures to minimize the adverse impacts of these effects.

We appreciate the opportunity to comment on the referenced NOP. If you have any questions pertaining to these comments, please feel free to call P.J. White of my staff at (916) 414-6732.

Sincerely,



Karen J. Miller  
Chief, Endangered Species Division

Enclosure

cc: CDFG, Rancho Cordova (Larry Eng)

ATTACHMENT A  
Endangered and Threatened Species that May Occur in  
or be Affected by Projects in the Selected Quads Listed Below  
Midway  
February 2, 2000

QUAD : 444A VERNALIS

**Listed Species**

Mammals

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

vernal pool tadpole shrimp, *Lepidurus packardii* (E)

**Proposed Species**

Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) \*

Birds

mountain plover, *Charadrius montanus* (PT)

**Candidate Species**

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

**Species of Concern**

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

Swainson's hawk, *Buteo Swainsoni* (CA)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

greater sandhill crane, *Grus canadensis tabida* (CA)

white-faced ibis, *Plegadis chihi* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Kern brook lamprey, *Lampetra hubbsi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Sacramento anthicid beetle, *Anthicus sacramento* (SC)

California linderiella, *Linderiella occidentalis* (SC)

molestan blister beetle, *Lytta molesta* (SC)

Plants

slough thistle, *Cirsium crassicaule* (SC)

delta coyote-thistle, *Eryngium racemosum* (CA) \*

QUAD : 444B TRACY

**Listed Species**

Mammals

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

#### Plants

large-flowered fiddleneck, *Amsinckia grandiflora* (E)

#### **Proposed Species**

##### Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) \*

##### Birds

mountain plover, *Charadrius montanus* (PT)

#### **Candidate Species**

##### Amphibians

California tiger salamander, *Ambystoma californiense* (C)

#### **Species of Concern**

##### Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

##### Birds

tricolored blackbird, *Agelaius tricolor* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

greater sandhill crane, *Grus canadensis tabida* (CA)

white-faced ibis, *Plegadis chihi* (SC)

##### Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

#### Amphibians

foothill yellow-legged frog, *Rana boylei* (SC)

western spadefoot toad, *Scaphiopus hammondi* (SC)

#### Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Kern brook lamprey, *Lampetra hubbsi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

#### Invertebrates

Sacramento anthicid beetle, *Anthicus sacramento* (SC)

California linderiella, *Linderiella occidentalis* (SC)

#### Plants

caper-fruited tropidocarpum, *Tropidocarpum capparideum* (SC) \*\*

QUAD : 445A MIDWAY

#### **Listed Species**

##### Mammals

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

##### Birds

bald eagle, *Haliaeetus leucocephalus* (T)

##### Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

giant garter snake, *Thamnophis gigas* (T)

##### Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

##### Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

#### Invertebrates

longhorn fairy shrimp, *Branchinecta longiantenna* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

vernal pool tadpole shrimp, *Lepidurus packardii* (E)

#### Plants

Critical habitat, large-flowered fiddleneck, *Amsinckia grandiflora* (E)

large-flowered fiddleneck, *Amsinckia grandiflora* (E)

showy Indian clover, *Trifolium amoenum* (E) \*

#### **Proposed Species**

##### Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) \*

##### Birds

mountain plover, *Charadrius montanus* (PT)

#### **Candidate Species**

##### Amphibians

California tiger salamander, *Ambystoma californiense* (C)

#### **Species of Concern**

##### Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

##### Birds

tricolored blackbird, *Agelaius tricolor* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)  
western burrowing owl, *Athene cunicularia hypugea* (SC)  
ferruginous hawk, *Buteo regalis* (SC)  
little willow flycatcher, *Empidonax traillii brewsteri* (CA)  
American peregrine falcon, *Falco peregrinus anatum* (D)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)  
northwestern pond turtle, *Clemmys marmorata marmorata* (SC)  
southwestern pond turtle, *Clemmys marmorata pallida* (SC)  
San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)  
California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylei* (SC)  
western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)  
river lamprey, *Lampetra ayresi* (SC)  
Pacific lamprey, *Lampetra tridentata* (SC)  
longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)  
California linderiella, *Linderiella occidentalis* (SC)

Plants

diamond-petaled poppy, *Eschscholzia rhombipetala* (SC)  
caper-fruited tropidocarpum, *Tropidocarpum capparideum* (SC) \*\*

QUAD : 462C UNION ISLAND

**Listed Species**

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (T)  
bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

## Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

## Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

## Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

vernal pool tadpole shrimp, *Lepidurus packardii* (E)

**Proposed Species**

## Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) \*

## Birds

mountain plover, *Charadrius montanus* (PT)

**Candidate Species**

## Amphibians

California tiger salamander, *Ambystoma californiense* (C)

## Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

**Species of Concern**

## Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

Swainson's hawk, *Buteo Swainsoni* (CA)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

greater sandhill crane, *Grus canadensis tabida* (CA)

white-faced ibis, *Plegadis chihi* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Sacramento anthicid beetle, *Anthicus sacramento* (SC)

California linderiella, *Linderiella occidentalis* (SC)

molestan blister beetle, *Lytta molesta* (SC)

QUAD : 462D LATHROP

**Listed Species**

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

## Reptiles

giant garter snake, *Thamnophis gigas* (T)

## Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

## Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

## Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

**Proposed Species**

## Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) \*

## Birds

mountain plover, *Charadrius montanus* (PT)

**Candidate Species**

## Amphibians

California tiger salamander, *Ambystoma californiense* (C)

## Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

**Species of Concern**

## Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

- long-legged myotis bat, *Myotis volans* (SC)
- Yuma myotis bat, *Myotis yumanensis* (SC)
- San Joaquin pocket mouse, *Perognathus inornatus* (SC)

#### Birds

- tricolored blackbird, *Agelaius tricolor* (SC)
- western burrowing owl, *Athene cunicularia hypugea* (SC)
- Swainson's hawk, *Buteo Swainsoni* (CA)
- ferruginous hawk, *Buteo regalis* (SC)
- little willow flycatcher, *Empidonax traillii brewsteri* (CA)
- American peregrine falcon, *Falco peregrinus anatum* (D)
- greater sandhill crane, *Grus canadensis tabida* (CA)
- white-faced ibis, *Plegadis chihi* (SC)

#### Reptiles

- silvery legless lizard, *Anniella pulchra pulchra* (SC)
- northwestern pond turtle, *Clemmys marmorata marmorata* (SC)
- southwestern pond turtle, *Clemmys marmorata pallida* (SC)
- San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)
- California horned lizard, *Phrynosoma coronatum frontale* (SC)

#### Fish

- green sturgeon, *Acipenser medirostris* (SC)
- river lamprey, *Lampetra ayresi* (SC)
- Kern brook lamprey, *Lampetra hubbsi* (SC)
- Pacific lamprey, *Lampetra tridentata* (SC)
- longfin smelt, *Spirinchus thaleichthys* (SC)

#### Invertebrates

- Sacramento anthicid beetle, *Anthicus sacramento* (SC)
- California linderiella, *Linderiella occidentalis* (SC)
- molestan blister beetle, *Lytta molesta* (SC)

#### Plants

- slough thistle, *Cirsium crassicaule* (SC)
- delta coyote-thistle, *Eryngium racemosum* (CA) \*
- valley sagittaria, *Sagittaria sanfordii* (SC)

QUAD : 463D CLIFTON COURT FOREBAY

**Listed Species**

Mammals

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

longhorn fairy shrimp, *Branchinecta longiantenna* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

**Proposed Species**

Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*

riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) \*

Birds

mountain plover, *Charadrius montanus* (PT)

**Candidate Species**

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

## Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

**Species of Concern**

## Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

## Birds

tricolored blackbird, *Agelaius tricolor* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

Swainson's hawk, *Buteo Swainsoni* (CA)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

greater sandhill crane, *Grus canadensis tabida* (CA)

white-faced ibis, *Plegadis chihi* (SC)

## Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

## Amphibians

foothill yellow-legged frog, *Rana boylei* (SC)

## Fish

green sturgeon, *Acipenser medirostris* (SC)

- river lamprey, *Lampetra ayresi* (SC)  
 Pacific lamprey, *Lampetra tridentata* (SC)  
 longfin smelt, *Spirinchus thaleichthys* (SC)

## Invertebrates

- curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)  
 California linderiella, *Linderiella occidentalis* (SC)  
 molestan blister beetle, *Lytta molesta* (SC)

## Plants

- heartscale, *Atriplex cordulata* (SC)  
 valley spearscale, *Atriplex joaquiniana* (SC)  
 recurved larkspur, *Delphinium recurvatum* (SC)  
 Mason's lilaeopsis, *Lilaeopsis masonii* (SC)  
 little mousetail, *Myosurus minimus* ssp. *apus* (SC) ?  
 caper-fruited tropidocarpum, *Tropidocarpum capparideum* (SC) \*\*

## KEY:

- |      |                           |   |
|------|---------------------------|---|
| (E)  | <i>Endangered</i>         | Listed (in the Federal Register) as being in danger of extinction.  |
| (T)  | <i>Threatened</i>         | Listed as likely to become endangered within the foreseeable future.  |
| (P)  | <i>Proposed</i>           | Officially proposed (in the Federal Register) for listing as endangered or threatened.                                |
| (PX) | <i>Proposed</i>           | Proposed as an area essential to the conservation of the species.   |
|      | <i>Critical Habitat</i>   |   |
| (C)  | <i>Candidate</i>          | Candidate to become a <i>proposed</i> species.  |
| (SC) | <i>Species of Concern</i> | May be endangered or threatened. Not enough biological information has been gathered to support listing at this time. |
| (D)  | <i>Delisted</i>           | Delisted. Status to be monitored for 5 years.   |
| (CA) | <i>State-Listed</i>       | Listed as threatened or endangered by the State of California.  |
| (*)  | <i>Extirpated</i>         | Possibly extirpated from this quad.   |
| (**) | <i>Extinct</i>            | Possibly extinct.   |
|      | <i>Critical Habitat</i>   | Area essential to the conservation of a species.  |

**Memorandum**

Date : 2-28-00

To : Governor's Office of Planning and Research  
State Clearinghouse  
1400 Tenth Street, Room 121  
Sacramento, California 95814MAR 2000  
RECEIVED  
Community  
Development

From : THE RECLAMATION BOARD

Subject : State Clearinghouse No. (none)

Staff for The Reclamation Board has reviewed the environmental document provided by SCH and provides the following comments:

The proposed project may be located within or adjacent to floodways and/or levees over which the Board has jurisdiction. Section 8710 of the California Water Code requires that a Board permit must be obtained prior to start of any work, including excavation and construction activities within floodways, levees, and 25 feet landward of the landside levee toes. A list of streams regulated by the Board is contained in the California Code of Regulations, Title 23, Section 112.

Section 7 of the Regulations states that additional information, such as geotechnical exploration and analysis, soil testing, hydraulic or sediment transport studies, biological surveys, environmental surveys, and other analyses, may be required at any time prior to Board action on the application.

Section 8 of the Regulations states that applications for permits submitted to the Board must include a completed environmental questionnaire that accompanies the application and a copy of any environmental documents that have been prepared for the project. For any foreseeable significant environmental impacts, mitigation for such impacts shall be proposed. All applications are reviewed for compliance with the California Environmental Quality Act.

If you have any questions, please contact me.



Carol Birch, Chair  
Environmental Review Committee  
(916) 653-9898

cc: Lead Agency  
(NOP attached)

Mr. Robert Conant, Senior Planner  
City of Tracy WWTP Expansion NOP  
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discharging to Dredger cut. In its November 23, 1999 comments to the Regional Board on a risk assessment report for the City of Stockton WWTP permit, DHS recommended that the Regional Board require the City of Stockton to modify its WWTP to enhance pathogen reduction in the plant effluent. According to DHS such modifications should include filtration and enhanced disinfection sufficient to comply with the strict total coliform counts and turbidity criteria included in the Mountain House and City of Lodi NPDES orders. In light of these recent regulatory actions, CUWA recommends the EIR for the City's expanded WWTP include an evaluation of alternatives for maximizing land disposal and providing full tertiary treatment.

2. Salinity Control. The Mountain House NPDES Order requires the Discharger to use the best-practicable cost-effective control technique available to limit salinity concentrations in its discharge. The Discharger is required to submit a plan to the Regional Board for implementing this limit. The EIR for the expanded WWTP should include an evaluation of alternatives for limiting salinity concentrations in the discharge.
3. Protection of Drinking Water Quality. The Regional Board is developing a drinking water policy for inclusion in the *Comprehensive Water Quality Control Plan for the Sacramento and San Joaquin Regions* (Basin Plan) that is expected to include water quality objectives and implementation plans to control sources of salinity, organic carbon, bromide and pathogens in the Sacramento-San Joaquin watershed. The CALFED Bay-Delta Program has committed to continuous improvement in source water quality for Delta drinking water supplies in order to meet current and future drinking water regulatory requirements and protect public health. CALFED has set long-term Delta water quality targets at 3.0 mg/L for total organic carbon (TOC) and 50 µg/L for bromide and is working with stakeholders to develop interim milestones to measure continuous improvement in these water quality parameters. CALFED is also developing long-term salinity targets and interim milestones to ensure continuous improvement in Delta salinity levels in support of local water management programs. The EIR for the expanded WWTP should include an evaluation of alternatives for limiting concentrations of salinity, organic carbon, bromide and pathogens in the discharge.

Currently, the Central Valley Regional Water Quality Control Board does not regulate many of the contaminants of concern to the drinking water utilities. In the discussion that follows, we describe our concerns related to TOC, DBFS, pathogens and salinity and provide specific suggestions related to the cumulative impact analysis, alternatives development and mitigation strategies to be considered in the draft EIR.

#### Total Organic Carbon and Disinfection By-Products

Of particular concern to the drinking water utilities is the need to ensure long-term compliance with the recent revisions to the federal drinking water statutes and regulations. For example, in 1996 the United States Congress reauthorized the Safe Drinking Water Act. As part of that reauthorization, Congress mandated that the U.S. EPA promulgate Stage 1 and Stage 2 of the

Mr. Robert Conant, Senior Planner  
City of Tracy WWTP Expansion NOP  
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Disinfectants/Disinfection By-Product (D/DBP) Rule by November 1998 and May of 2002, respectively. The D/DBP Rule calls for significant lowering of the allowable concentrations of THMs, bromate and other DBPs in drinking water and for the first time in the history of the federal Safe Drinking Water Act, TOC and bromate are regulated as drinking water contaminants.

The Stage 1 Rule, promulgated in November 1998, requires drinking water utilities to reduce influent TOC. For utilities diverting drinking water supplies from the Delta, this new rule requires twenty-five percent of the TOC in the influent to the water treatment plant be removed when the Delta TOC concentration is between 2.0 and 4.0 mg/L. If the Delta TOC concentration is greater than 4.0 mg/L, the utilities are required to remove thirty-five percent of the influent TOC. The ambient TOC concentrations of Delta water are generally greater than 4.0 mg/L in the winter months and slightly less than 4.0 mg/L during the summer. Left unmitigated, the cumulative impact of TOC discharges from the WWTRF, when combined with other proposed sources of TOC loading to the Delta, could increase the frequency of exceedance of the 4.0 mg/L TOC standard and lead to additional treatment cost for the drinking water utilities on the order of millions of dollars per year.

Disinfection of drinking water supplies containing elevated concentrations of TOC or bromide results in the formation of hundreds of DBPs. Exposure to these chemical by-products of drinking water disinfection is suspected to cause cancer. Other DBPs may cause adverse developmental and reproductive effects. Under Stage 1, water utilities are required to reduce the concentration of THMs and bromate in their treated water to 80 µg/L and 10 µg/L, respectively. Under Stage 2 drinking water utilities may be required to further reduce the concentration of THMs and bromate in their treated water to 40 µg/L and 5 µg/L, respectively.

The discharge of increased quantities of THMs and THM precursors to the Sacramento River would make it more difficult for CUWA members who rely on Delta supplies to comply with THM standards and could increase the human health risks associated with the production of THMs and other DBPs in treated drinking water. In response to these concerns, the CALFED Bay-Delta Program December 18, 1998 Revised Phase II Report commits to continuous improvement in source water quality for Delta drinking water supplies in order to meet current and future regulatory requirements and protect public health. CALFED has established target levels for TOC (3.0 mg/L) and bromide (50 µg/L) at the south and central Delta drinking water intakes and proposed Water Quality Program actions to reduce levels of bromide and TOC in the Sacramento-San Joaquin watershed, including possible restrictions on point source discharges.

### Pathogens

Also of concern to the drinking water utilities are pathogens. *Cryptosporidium* and *Giardia* are two protozoan pathogens that are found in treated wastewater that are resistant to chlorine and can survive in the aquatic environment for very long periods. There are many species of the *Cryptosporidium* organism. The one most commonly associated with human disease is *Cryptosporidium parvum*, which causes the disease cryptosporidiosis. Symptoms of the disease are flu-like, with most common symptoms or complaints including abdominal cramping, nausea, diarrhea, weakness, and fatigue. The disease is not treatable. In healthy individuals it is self-



## CALIFORNIA URBAN WATER AGENCIES

February 11, 2000

By U.S. Mail and Facsimile (209) 831-4606

Mr. Robert Conant  
Senior Planner  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

FEB 2000  
RECEIVED  
Community  
Development

**Notice of Preparation**  
**City of Tracy Wastewater Treatment Plant Expansion Project**

Dear Mr. Conant:

The California Urban Water Agencies (CUWA)<sup>1</sup> is submitting the following comments in response to the January 12, 2000 Notice of Preparation (NOP) for the City of Tracy Wastewater Treatment Plant (WWTP) Expansion.

The City of Tracy's existing wastewater treatment plant currently operates at a permitted capacity of 9 million gallons per day (mgd) average dry weather flow (ADWF). The City is proposing to expand the treatment plant capacity to 16 mgd ADWF to partially accommodate anticipated growth. Build out of land uses in the City is anticipated to generate an ADWF of 32.5 mgd. Thus, the proposed expansion would only accommodate about 50 percent of the City's long-term wastewater treatment and disposal needs. Currently at the Tracy WWTP, 6 mgd of domestic wastewater from the City and 0.5 mgd of food process water is sent through a series of sequential treatment processes to achieve the required effluent quality, including secondary level of treatment chlorine disinfection and de-chlorination with sulfur dioxide. The treated effluent is then pumped 3.5 miles north of the WWTP and discharged through a submerged outfall in Old River.

The City proposes to increase its wastewater treatment and disposal capacity by installing additional headworks, primary and secondary treatment, chlorination/de-chlorination facilities, solids handling and possibly an additional outfall pipeline. Thus, the proposed project contemplates continued discharge of secondary effluent to Old River. Possible additional facilities that may be provided by the City if required for regulatory compliance include tertiary filtration and ammonia

<sup>1</sup> The California Urban Water Agencies (CUWA) is an organization of twelve municipal water providers serving over 22 million water consumers in the City of Sacramento, San Francisco Bay Area and Southern California. CUWA's member agencies use about 90% of the urban water supplies diverted from the Sacramento-San Joaquin Delta and its tributaries.

Mr. Robert Conant, Senior Planner  
City of Tracy WWTP Expansion NOP  
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removal facilities. The NOP fails to mention whether the City is considering any alternatives for disposal of the treated effluent other than discharge to Old River.

We recognize the need for the Project to accommodate anticipated growth within the City. CUWA's comments on the NOP focus on the need to ensure that the City's effluent disposal plans do not come at an increased expense to drinking water utilities or result in an overall degradation of the quality of drinking water supplies diverted from the Sacramento-San Joaquin Delta (Delta). CUWA member agencies currently receive water diverted from the Delta via the State Water Project (SWP) at the Banks Pumping Plant; via the Central Valley Project (CVP) at Tracy Pumping Plant; and via the Contra Costa Water District at Old River, Rock Slough and Mallard Slough pumping plants. Of concern to drinking water utilities are disinfection by-products (DBPs) and source water contaminants such as DBP precursors total organic carbon (TOC) and bromide, pathogens, total dissolved solids (TDS) and chloride.

We respectfully request that the draft environmental impact report (EIR) include an analysis of the anticipated impact of the proposed project on water quality at the urban water intakes located downstream from the point(s) of discharge. Please consider the following potential impacts:

1. Whether the proposed discharge(s) could result in increased cost to urban water agencies to comply with TOC, bromate and trihalomethane (THM) standards and source water salinity requirements;
2. Whether the proposed discharge(s) could result in increased the human health risks due to exposure to pathogens or additional formation of THMs, bromate or other disinfection by-products (DBPs) in treated drinking water supplies; and
3. Whether the proposed discharge(s) would have an impact on CALFED Bay Delta Program's plans for continuous improvement in the Delta as a source of drinking water supplies.

Additionally, the EIR should also include a rigorous evaluation of alternative strategies to comply with reasonably foreseeable regulatory trends applicable to the proposed discharge including:

1. Public Health Considerations. The Department of Health Services (DHS) has expressed concerns regarding potential public health impacts associated with the City of Tracy and Mountain House CSD (proposed) discharges of treated wastewater in Old River. These discharges receive limited dilution prior to being re-diverted at several major water intakes which supply drinking water to 22 million people and irrigation water for thousands of acres of food crops. To ensure that the quality of water discharged by Mountain House CSD would not present a significant risk to these drinking water and irrigation supplies, the effluent limits established by the Regional Water Quality Control Board (Regional Board) in the permit for Mountain House CSD (NPDES Order No. 98-192) require Mountain House CSD to maximize land disposal options and provide full tertiary treatment and disinfection prior to discharge to Old River. Additionally, in response to DHS concerns, the Regional Board recently ordered the City of Lodi to upgrade the White Slough WWTP to tertiary treatment (NPDES Order No. 5-00-031) and maximize land disposal options prior to

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limiting, but it can be fatal to those with weakened immune systems, such as chemotherapy patients, organ transplant recipients, people with HIV, the elderly, and the very young. There are outbreaks of cryptosporidiosis occurring throughout the world. The largest confirmed outbreak of the disease to date occurred in 1993 in Milwaukee. In this single episode, more than 400,000 people became ill with symptoms of the disease, and scores died from it. While the specific source of the contamination has yet to be confirmed, a recent study suggests that human waste in city water drawn from Lake Michigan was the source of the Milwaukee outbreak.<sup>2</sup>

Currently, *Cryptosporidium* is unregulated, in large part due to uncertainties in current measurement techniques. The Information Collection Rule, which began in July 1997 and runs for 18 months, requires larger drinking water utilities to sample and test for *Cryptosporidium*. The long-term Enhanced Surface Water Treatment Rule may include *Cryptosporidium* inactivation as well as removal requirements. It will be promulgated in November 2000, and by November 2003, all communities with populations greater than 10,000 that use surface water will be required to be in compliance. For utilities employing conventional treatment, the higher pathogen concentrations could be problematic, as they would be unable to increase pathogen removal and inactivation without significant capital investment and increased operation and maintenance cost. For water utilities employing ozone as their primary disinfectant, the likely impact is a significant increase in ozone demand, higher bromate formation and possibly additional capital investment in order to achieve higher levels of inactivation of pathogens. Thus, regardless of the type of treatment employed, increases in source water pathogen levels can have significant impacts on water treatment operations and presents serious public health concerns.

CALFED has proposed Water Quality Program actions to reduce levels of pathogens in the Sacramento-San Joaquin watershed, including possible restrictions on point source discharges.

#### Total Dissolved Solids, Chloride

Total dissolved solids (TDS) and chloride concentrations are also of concern to the drinking water utilities. Under current Delta operating criteria, elevated TDS concentrations in the Delta result in the Central Valley Project (CVP) and State Water Project (SWP) having to release additional water from storage to comply with Delta water quality standards. TDS in Delta water would also have an adverse impact on water management programs of the CUWA agencies; most notably water recycling and groundwater storage programs. Collectively, CUWA members and their subagencies have invested over a billion dollars in capital facilities to maximize their water recycling and groundwater storage opportunities. The success of these water management programs is contingent upon the continued availability of acceptable quality water from the Sacramento and San Joaquin Rivers.

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<sup>2</sup> A 1997 Center for Disease Control study suggests that the source of *Cryptosporidium parvum* in the Milwaukee outbreak is human rather than bovine. Using polymerase chain reaction techniques, four isolates were examined from the Milwaukee outbreak. All four isolates were found to have a genotype observed only in isolates from humans. CDC's Charles Beard, one of the authors of the study, said that the study suggests that human waste in city water drawn from Lake Michigan was the source of the Milwaukee outbreak in March and April of 1993. (*Cryptosporidium Capsule* Vol. 3, Issue 1, November 1997).

Mr. Robert Conant, Senior Planner  
City of Tracy WWTP Expansion NOP  
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Local and regional water planning and regulatory decisions have been based upon SWP contract provisions which specifies a TDS objective of 220 mg/L on average for any ten-year period and 440 mg/L for any month. Over the last ten years, TDS concentrations of the SWP have frequently exceeded the 220 mg/L objective. CALFED has initiated a process to provide a rationale for establishing water quality targets and interim milestones for TDS in the Delta. CUWA's Board of Representatives recently adopted a salinity management policy to guide CUWA's participation in the CALFED Water Quality Program.<sup>3</sup> This policy is based on a study assessing the impacts of the salinity of Bay-Delta supplies on urban water agencies and their customers. A copy of CUWA's salinity impact study can be made available to the City upon request.

### Cumulative Impact Analysis

The final EIR should include an evaluation of the cumulative effects of the proposed discharge(s) on TOC, DBP, pathogen, TDS and chloride concentrations in the Delta. In assessing the cumulative impacts of the project, the EIR should consider all reasonably foreseeable sources of these constituents, including non-point runoff from the newly urbanized parts of the City served by the expanded WWTP. The project impacts should be considered in conjunction with other projects proposing to increase TOC, DBP, pathogen and salt loading to the Sacramento and San Joaquin Rivers and the Delta, including, but not limited to the Sacramento CSD WWTP expansion, City of Manteca WWTP expansion, Mountain House CSD WWTP, Discovery Bay WWTP, and City of Brentwood WWTP expansion.

### Alternatives and Mitigation

In addition to the alternatives listed in the NOP, the draft EIR should consider the following project alternatives and mitigation strategies to minimize the anticipated impacts to urban drinking water supplies due to the proposed discharge(s):

1. Increasing the level of treatment provided for the existing and proposed discharge (e.g., adding filtration capacity);
2. Beneficial reuse and land disposal of the effluent;
3. Adoption of industrial, commercial and residential source control strategies to minimize salinity and TOC loading to the wastewater collection system;
4. Adoption of industrial and commercial local limits for salinity and TOC loading to the wastewater collection system; and

---

<sup>3</sup> CALFED should provide for a level of salinity in water diverted from the Delta which supports CALFED recycling and conjunctive use goals in the most cost-effective manner; minimizes dry-year water demands on the Delta; and provides for blended drinking water TDS levels of no more than 500 mg/L. CALFED should adopt a short-term salinity target of 220 mg/L to be met at urban diversion points by the end of Stage 1 and a long-term salinity target of 150 mg/L to be met at urban diversion points by 2020. Alternatively, CALFED should achieve an equivalent level of salinity reduction within the urban agencies' service areas through a cost-effective combination of source control; blending with higher quality sources; treatment technologies; and improved state and federal operations.

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## NOTICE OF PREPARATION

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**DATE:** January 12, 2000

**TO:** Responsible Agencies, Organizations and Interested Parties

**LEAD AGENCY:** City of Tracy  
Contact: Mr. Robert Conant, Senior Planner  
520 Tracy Boulevard  
Tracy, CA 95376

**SUBJECT:** Environmental Impact Report for the City of Tracy Wastewater Treatment Plant (WWTP) Expansion

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In discharging its duties under Section 15021 of the California Environmental Quality Act (CEQA) Guidelines, the City of Tracy (as Lead Agency) intends to prepare an Environmental Impact Report, consistent with Article 9 of the CEQA Guidelines, for the City of Tracy Wastewater Treatment Plant (WWTP) Expansion. In accordance with Section 15082 of the CEQA Guidelines, the City of Tracy has prepared this Notice of Preparation to provide Responsible Agencies and other interested parties with sufficient information describing the proposal and its potential environmental effects.

The determination to prepare an Environmental Impact Report was made by the City of Tracy. An Initial Study has been prepared pursuant to CEQA Section 15063, which identifies the anticipated environmental effects of the project.

As specified by the CEQA Guidelines, the Notice of Preparation will be circulated for a 30-day review period. The City of Tracy welcomes public input during this review. In the event that no response or request for additional time is received by any Responsible Agency by the end of the review period, the Lead Agency may presume that the Responsible Agency has no response.

Comments may be submitted in writing during the review period and addressed to:

Mr. Robert Conant, Senior Planner  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

The comment period closes on February 11, 2000

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Mr. Robert Conant, Senior Planner  
City of Tracy WWTP Expansion NOP  
Page 7 of 7

5. Use of ultra violet disinfection as a means of eliminating TDS loading to Old River resulting from chlorination of the treated wastewater followed by de-chlorination prior to discharge.

Thank you for the opportunity to comment on the Notice of Preparation for the City of Tracy's proposed wastewater treatment plant expansion. Questions regarding CUWA's comments should be directed to Peter MacLaggan at (619) 523-4661.

Sincerely,



Byron M. Buck  
Executive Director

BMB:pmm

Cc: David Spath, DHS  
Gary Carlton, RWQCB  
Walt Pettit, RWQCB  
Felicia Marcus, USEPA  
Steve Ritchie, CALFED

**Memorandum**

Date : February 8, 2000

To :

1. Project Coordinator  
Resources Agency
2. City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376  
Attention: Mr. Robert Conant, Senior Planner

From : Department of Water Resources

RECEIVED  
FEB 10 2000

Subject : **SCH#2000012039 Notice of Preparation and Initial Study/ City of Tracy  
Wastewater Treatment Plant (WWTP) Expansion**

Thank you for the opportunity to review the City of Tracy Wastewater Treatment Plant Expansion Notice of Preparation and Initial Study. The City of Tracy proposes to construct a new 32" outfall pipe that will discharge 16 MGD or 24.6 cfs of secondary treated wastewater into Old River.

The Department of Water Resources takes an active role in evaluating the suitability of Delta water as a drinking water source with programs that seek to identify sources of water quality degradation, and evaluate means of eliminating or preventing degradation of Delta water quality. The EIR to be prepared for this project should address DWR's concerns as expressed in this memo.

**Concern and Recommendation**

Page 16. *Initial Study. Potentially Significant Impact. Construction of the new Old River outfall may impact surface water quality.*

We agree with the finding that the project has the potential to impact surface water quality. Water quality in Old River is already impacted by high dissolved solids (TDS) and organic carbon (TOC) from local agricultural drainage, tidal influences, and upstream San Joaquin River sources. The SWRCB 1995 Bay-Delta Plans and RWQCB Basin Plan set maximum seasonal electrical conductivity (EC) averages in South Delta waterways for the reasonable protection of agricultural uses. EC is also the current primary control standard for salinity and overall Delta water quality. Basin Plan EC objectives are often exceeded during dry and critically dry years.

The proposed wastewater discharges may increase salinity loadings and compromise the ability of both the State and federal water projects to meet southern Delta water quality standards and deliver water of a salinity acceptable for use by SWP and CVP contractors. Attempt by the SWP and CVP to control Delta salinity may incur both water supply and operations costs through increased upstream flow releases or restraints on export operations. Increased wastewater salinity loadings may also increase downstream SWP municipal contractor's water treatment costs. California urban water agencies working through the CALFED process have proposed Water

Quality Improvement Goals for the Delta that include specific short-and long-term TOC, bromide and TDS targets for Delta source water supply. Increased WWTP discharges may compromise the ability to meet these goals as well. Though the Basin Plan addresses salinity loading as EC, we recommend that an impact analysis address TDS in the discharge and receiving water to better assess increased salinity load and the ability to meet existing and proposed water quality goals.

The project's Old River discharge is about 4 miles upstream of the Old River Barrier at Head, a seasonal barrier DWR constructs under the Temporary Barriers Project and propose to construct as a permanent Old River Flow Control Structure. The Temporary Barriers Program is a \$40 million project to provided water quality, flow, fisheries protection and circulation improvements in South Delta channels. Modeling studies of Old River flow (DWRDSM) show Old River flows at a stand still or slightly reversed for about 3 ½ months of the year under Old River at Head fall and spring barrier operations for all year types except spring of wet years. These low flow and stagnant periods may seriously impair the river's dilution capacity. (*Draft EIR/EIS Interim South Delta Program*, July 1996, DWR).

The Basin Plan and the current City of Tracy WWTP NPDES permit requires that the discharge not cause the concentration of dissolved oxygen (DO) in Old River to fall below 5.0 mg/l. DWR has monitored DO levels in Old River near the Tracy Wildlife Association property as part of the Temporary Barriers Program. DWR readings confirm that DO levels drop below 5mg/l. Low dissolved oxygen levels are fatal to aquatic life and may result under high water temperatures or high biochemical oxygen demand conditions that may occur when Old River flow is low or reversing.

We recommend that the EIR include a characterization of available dilution and flow conditions in the vicinity of the wastewater discharge incorporating various SWP, CVP and CCWA pumping scenarios, tidal cycles, and future Old River barrier installation projects. These studies should also characterize channel salinities (EC and TDS), Biological Oxygen Demand, oxygen levels, temperature and effluent toxicity under secondary, tertiary and advanced treatment.

*Page 22. Initial Study. Mandatory Findings of Significance Potentially Significant Impact Potentially adverse effects on humans may occur with through exposure to hazardous materials or conditions.*

The Sacramento-San Joaquin Delta is a sources of drinking water for about two-thirds of California's population. The Department of Water Resource exports Delta water supply at its H.O. Banks Pumping Plant near Byron, in the south Delta approximately 7 miles downstream of the proposed project. The State Water Project's

Clifton Court Forebay draws water through its intake gates from Old River to convey source water for drinking water supply in Alameda, Contra Costa and Santa Clara counties. The federal CVP Tracy Pumping Plant also exports Old River water supply via its Delta-Mendota Canal (DMC) and provides the City of Tracy with a portion of its municipal source water supply.

The Drinking Water Source Assessment and Protection (DWSAP) Program of the California Department of Health Services ranks wastewater treatment plants as having a high or very high potential risk to drinking water sources. Wastewater treatment plants are known sources of pathogens, including *Cryptosporidium*, *Giardia*, fecal coliform bacteria, and viruses that are regulated under requirements of the Safe Drinking Water Act of 1996 and included among DHS's contaminants of concern. Therefore, an increase in plant capacity along with the potential for plant upset and accidental discharge is of great concern. The current NPDES permit conditions (page 10) do not regulate several constituents that may have adverse impacts on drinking water quality. These include TOC and Disinfection Byproducts (DBP), specifically trihalomethane precursors (Bromide, TOC, dissolved organic carbon (DOC)) as well as trihalomethanes, bromate, and haloacetic acids.

The proposed project assumes continued secondary-level of treatment. An assessment of levels of needed treatment should consider the higher protection of the receiving water, which becomes a drinking water source, that tertiary and more advanced treatment methods provides. Tertiary and higher treatment may improve DO conditions by removing Biochemical Oxygen Demand-creating materials from the discharge. The use of tertiary or higher treatment of wastewater provides a greater measure of public protection against pathogens. Certain advanced methods may also reduce dissolved inorganic constituents including salts.

The EIR should assess the potential impacts of the treated discharge on drinking water source water quality. A monitoring program should assess this impact including TOC and DOC, and evaluate the relationship with BOD, TOC and TDS.

### **Cumulative Impact Analysis**

A comprehensive analysis of cumulative impacts on water quality, downstream municipal water supply, and biological resources is required under CEQA. The SWRCB in its proposed *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Third Public Draft, January 2, 2000)* promotes an integrated, basin-wide watershed approach to assess water quality issues. We encourage the City of Tracy to conduct and cooperate on a regional basis

in the assessment of its contributions, through waste, storm water and non-point source runoff discharges, to Old River water conditions.

Such an analysis would combine the City of Tracy's impacts with those from other recently proposed discharges to Old River and South Delta waterways, including but not limited to Mountain House Community, Discovery Bay, Brentwood and other expanding and newly urbanized areas within the wider surrounding watershed of the Sacramento-San Joaquin Delta. In making these analyses, it is important that any dilution model consider additive loading from all discharges into South Delta waterways in its calculations and incorporate a mass balance approach. Tracy's secondary-treated WWTP's discharge will contribute a pollutant loading to the future Mountain House's Old River receiving water. Other loading sources include local agricultural drains, the San Joaquin River, the proposed Mountain House Marina, Discovery Bay WWTP, and both Mountain House and Tracy stormwater inflows. Each source cumulatively adds an incremental load to Old River base conditions. The model should also address water quality influences from South Delta barriers and from potential actions undertaken through CALFED activities. Modeling efforts should specifically include but not be limited to TOC, TDS, EC, and DO. The analysis should also address measures to reduce or divert these constituent loadings which may include domestic and industrial source control, or reclamation.

**Additions to page 13 (E. Required Tasks) of the NOP.**

Initial Study Page 5, *IV. Biological Resources. Would the Project: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Old River is a migratory pathway for several endangered anadromous and native Delta fisheries. We recommend endangered species coordination with the California Department of Fish and Game, U.S. Fish and Wildlife Service, and National Marine Fisheries Service be added to the list of identified tasks.

Thank you for this opportunity to provide our concerns associated with the expansion and increased discharge to Old River.

1. Project Coordinator, et al  
February 8, 2000  
Page 5

If you have any questions regarding our review of this Notice of Preparation and Initial Study, please call Larry Joyce, Chief, Water Quality Control Section, at (916) 653-7213, or Deborah Condon at (916) 653-9570.



Daniel F. Peterson, Chief  
Environmental Assessment Branch  
Division of Operations and Maintenance

cc: Rich Breuer/ 1020 Ninth St.  
Randy Brown/ 3251 S. St.  
Larry Joyce/620  
Deborah Condon/620

DEPARTMENT OF HEALTH SERVICES  
DRINKING WATER FIELD OPERATIONS BRANCH  
1 EAST CHANNEL STREET, ROOM 270  
STOCKTON, CA 95202



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February 7, 2000

Robert Conant, Senior Planner  
City of Tracy  
520 Tracy blvd.  
Tracy, CA 95376

**Comments on Notice Of Preparation for Draft Environmental  
Impact Report for Tracy Wastewater Treatment Plant Expansion  
Project (SCH# 2000012039)**

The Department is in receipt of a Notice of Preparation (NOP) dated January 14, 2000, for the City of Tracy's (City) Wastewater Treatment Plant Expansion Project draft Environmental Impact Report (EIR). The Department notes that to meet the requirements of California Environmental Quality Act (CEQA), the City has decided to prepare an EIR.

The City's existing wastewater treatment plant provides secondary treatment and disinfection before discharging to Old River and has design flow capacity of 9.0 MGD. Over the next decade, new commercial and residential development within the City is expected to increase the average wastewater flow to the plant from 6.5 to 16.0 MGD. The proposed project will increase plant capacity by installing additional facilities, while simultaneously upgrading the plant in anticipation of more stringent effluent discharge requirements.

Following are our comments on the proposed project:

For the City of Tracy, the source of surface water is the Delta Mendota Canal (DMC), which flows along the West Side of the City. A conventional type surface water treatment plant is provided for treatment of the source water, which is pumped from the DMC canal.

The Department expressed concern over the poor quality of water supplied by the DMC as early as 1978, in the City of Tracy's water supply permit Engineering Report. At the time, the report stated, "This must be considered one of the poorest sources of domestic water supply being used in California." One public health concern worth noting is that the City discharges the effluent from its wastewater

treatment plant into Old River a relatively short distance upstream of the point where water is pumped from Old River into the DMC. The concerns regarding the poor source water quality have been reiterated to the City on many occasions since 1978.

From the NOP, it is our understanding that additional effluent from the expanded wastewater treatment plant would also be discharged into Old River.

The Department is concerned that the City recycles a portion of its treated wastewater into the DMC via Old River. Now with the proposed expansion of the wastewater treatment plant, it is anticipated that an additional amount of about 7 MGD of treated wastewater would be discharged into Old River. A portion of this wastewater would eventually be transferred to the DMC. This would further degrade the quality of the DMC water, which is a drinking water source for the City.

Although, the Department is not opposed to the wastewater treatment plant expansion project, it strongly opposes any additional wastewater discharge into Old River as long as the City utilizes water from the DMC as a source of water for domestic supply.

It is the Department's position that prior to increasing the wastewater treatment plant capacity, the City should explore and propose the feasibility of any other methods (in addition to discharging into Old River) that can be used to dispose of the additional treated wastewater. Another alternative that would abate the public health concerns associated with the use of water from the DMC involves making arrangements to have the City's Bureau of Reclamation contract water delivered to the City's water treatment plant through some conveyance other than the DMC.

The Department would like the following items to be discussed in detail in the upcoming EIR for the wastewater treatment plant expansion project.

1. Identify all potential water supply sources that may be available to the City as alternatives to DMC water. Also, include a discussion on the advantages and disadvantages as a result of switching its water supply from the DMC to any of those sources.
2. A discussion regarding the City's efforts to transfer delivery of its Bureau of Reclamation water rights from the DMC to the California Aqueduct. The Department understands that use of the California Aqueduct, as a conveyance may be questionable because sufficient capacity in the aqueduct may not

be available throughout the year to meet the demand generally experienced by the City. There may be times during the course of a year, when water is not pumped into the California Aqueduct by the State Water Project Authority to protect fish. As a result, during such times, the City may face a water shortage/outage situation and may have to rely entirely on its ground water sources to meet the demand. To alleviate any such concerns, the City can explore constructing raw water storage reservoirs to store the California Aqueduct water at sites not far from the Tracy water treatment plant. Water can be stored in these reservoirs during the time of a year when water use is less and plenty of water is available from the California Aqueduct. The stored water can then be transferred to the Tracy water treatment plant whenever there is an interruption of water supply from the California Aqueduct or during any other period of high demand. The above scenarios should be discussed in the EIR to determine their suitability and practicality for the City of Tracy.

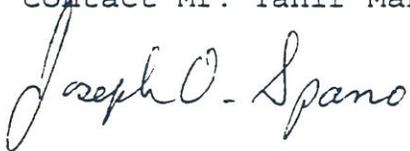
3. Identify and analyze all possible scenarios regarding alternative use of the additional wastewater effluent so that discharging into Old River can be avoided. For example, the treated wastewater can be used to irrigate agriculture lands, golf courses, for freeway landscaping, etc. Another alternative would be to discharge the additional wastewater effluent into any other canal, stream, or river other than Old River.
4. A discussion on the potential effects on bacteriological and chemical water quality of Old River and the DMC due to the additional wastewater discharge into Old River as a result of plant expansion.
5. The results of the analyses currently being conducted to define the level of treatment (secondary or tertiary) that will be required for the expanded wastewater plant before discharge of the effluent into Old River.
6. An analyses of the receiving water in Old River into which the City's treated wastewater is being discharged to determine the characteristics of that water in terms of the percentage of the flow that is natural precipitation runoff versus the percentages originating from upstream wastewater discharges, irrigation water return flows, and other discharges into the San Joaquin River and the Delta.

7. The use of Byron Bethany Irrigation District (BBID) water as a source of drinking water. The Department has already approved the use of this water as the source water for the new Mountain House treatment plant. The City of Tracy is currently considering the purchase of some of the water from BBID. If that plan materializes, the water will be conveyed in a pipeline from the BBID pumping plant to the Tracy water treatment plant.

The EIR should discuss enlarging that pipeline and using it as a conveyance for having the City's Bureau of Reclamation allotment delivered to the Tracy water treatment plant without the use of the DMC.

The City is reminded that the Department has recently implemented a Drinking Water State Revolving Fund. The revolving fund provides a source of money to fund water system improvements. The City is encouraged to apply for this loan by submitting a simple pre-application form to the Department. Forms can be requested from the Stockton district office.

If you have further questions regarding this matter, please contact Mr. Tahir Mansoor of this office at (209) 948-3879.



Joseph O. Spano, P.E.  
District Engineer  
Drinking Water Field Operations Branch  
Stockton Office

Cc: Katie Shulte, Project Analyst, State Clearinghouse,  
Office of Planning and Research, 1400 Tenth St.,  
P. O. Box 3044, Sacramento, CA 95812

Nick Pinhey, Director of Public Works, City of Tracy

A:\0100-NOP for wastewater plant

**CONTRA COSTA  
WATER DISTRICT**

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*General Manager*

February 8, 2000

City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376  
Attn.: Robert Conant, Senior Planner

**Subject: Notice of Preparation of a Draft Environmental Impact Report for the  
City of Tracy Wastewater Treatment Plant Expansion**

Dear Mr. Conant:

Contra Costa Water District (CCWD) appreciates the opportunity to provide comments on the January 12, 2000 Notice of Preparation (NOP) of a Draft Environmental Impact Report (Draft EIR) for the City of Tracy Wastewater Treatment Plant Expansion (Expansion). CCWD also supports the comments submitted by the California Urban Water Agencies.

CCWD agrees with the assessment in the NOP that the proposed Project could have significant impacts on hydrology and water quality in the receiving water (Old River). The proposed discharge from the Expansion would likely reach the District's major Delta intakes at Old River and Rock Slough<sup>1</sup> when Delta exports are low or when the south Delta flow barriers<sup>2</sup> are operating, and could reach the District's Los Vaqueros Reservoir when flow in the San Joaquin River is high. In particular, the increases in salt, organic carbon, pathogens, and other pollutant loads caused by the increase in wastewater discharge could adversely impact both the water quality and water supply of CCWD and other urban water agencies diverting or exporting water from the Delta. The resulting increase in pollutant concentrations at these intakes will make it more costly and difficult for urban water agencies to meet state and federal drinking water standards. CCWD requests that these impacts be analyzed in detail

<sup>1</sup> Contra Costa Water District's operations and facilities in the Delta is discussed in Attachment C.

<sup>2</sup> Temporary flow barriers are currently operating in the summer months as part of DWR's Temporary Barriers Project. Permanent barriers are proposed in the Interim South Delta Program Draft EIR/EIS and the CALFED South Delta Improvement Program.

Mr. Robert Conant, Senior Planner  
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and fully disclosed in the Draft EIR. CCWD further requests that, for all identified impacts on CCWD, adequate mitigation measures are proposed, adopted, and implemented before the wastewater discharge is increased beyond the current capacity.

Recent and ongoing developments in both state and federal regulations could lead to significantly more stringent standards on wastewater discharges in the near future. These new regulations could require wastewater treatment at a tertiary level as mentioned in the NOP. Furthermore, the section of the Old River impacted by the proposed discharge frequently exceeds the 1995 Water Quality Control Plan water quality objectives for salinity. CCWD believes that the proposed discharge could have a potentially significant impact leading to more frequent violations of water quality standards. To avoid any salinity impacts on that part of the Delta and externalizing compliance costs to third parties, CCWD requests that the range of treatment alternatives be expanded to include membrane filtration and reverse osmosis.

The EIR also needs to include an alternative that focuses on maximizing wastewater reuse and minimizes the volume and pollutant loads discharged to the Delta waterways, the source of drinking water for over 20 million Californians. Water reuse will avoid a net increase in pollutant load to the Delta, consistent with CALFED's goal for continuous improvement in Delta water quality, as well as making more efficient use of California's scarce water supplies. The nearby Mountain House New Community initially made a commitment to maximize reuse of its wastewater and has since committed to tertiary treatment. The City of Tracy wastewater treatment plant expansion EIR must analyze similar methods for protecting Delta water quality.

Detailed comments on the NOP are discussed in Attachment A. The adverse impacts of higher salt and other contaminant loads on municipal water users are discussed in Attachment B. An overview of CCWD operations and facilities is given in Attachment C for your reference in analyzing Project impacts on CCWD.

If you have any questions regarding this letter, please contact Dr. K. T. Shum at (925) 688-8083. Please add CCWD to your mailing list and send all correspondence to Richard A. Denton, Water Resources Manager, Contra Costa Water District, 1331 Concord Ave., P.O. Box H20, Concord, CA 94524-2099. The District looks forward to reviewing the Draft Environmental Impact Report for this Project.

Sincerely,



Richard A. Denton  
Water Resources Manager

KTS/LMH

Mr. Robert Conant, Senior Planner  
NOP to City of Tracy WWTP Expansion  
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Page 3

Cc: David Spath, DHS  
Gary Carlton, RWQCB  
Felicia Marcus, USEPA  
Steve Ritchie, CALFED

Attachments

- A. Detailed comments on the January 12, 2000 Notice of Preparation of a Draft Environmental Impact Report for the City of Tracy Wastewater Treatment Plant Expansion
- B. Impacts of higher contaminant concentrations on CCWD and other urban water agencies using Delta water
- C. CCWD operations and facilities

City of Tracy File

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### Attachment A

#### Detailed Comments on the January 12, 2000 Notice of Preparation of a Draft Environmental Impact Report for the City of Tracy Wastewater Treatment Plant Expansion

The proposed increase in average dry weather flow from the existing 6.5 MGD to 16 MGD could almost triple the discharge of salt, organic carbon, pathogens, and other pollutant loads into Old River. Unless adequate mitigation measures are implemented as part of the project, the resulting degradation in the water quality of the Old River inflow to the Delta will adversely impact the beneficial uses of Delta water by CCWD and other urban agencies diverting water from the central and south Delta. The adverse impacts due to a higher concentration of salt and other pollutants are discussed in detail in Attachment B.

CCWD requests that the Environmental Impact Report (EIR) quantify the increases in all constituents of concern to municipal and industrial water supply at CCWD's intakes in the Delta that would be caused by the proposed project.<sup>3</sup> The constituents of concern should include, at a minimum, salt (quantified as total dissolved solids, chloride, bromide, and sodium concentrations), organic carbon (both particulate and dissolved), pathogens (protozoan such as *Cryptosporidium parvum* and *Giardia lamblia*, viruses, and bacteria), and heavy metals. The impacts under different hydrological conditions, both seasonally and in different hydrological year types, should be quantified. CCWD further requests that the EIR quantify the impacts of these increases on CCWD's and other urban agencies' ability to meet existing and future drinking water regulations and on their operating costs. CCWD requests that the analyses in the EIR also include the cumulative impacts due to other new and expansion of existing wastewater discharges in the Sacramento, San Joaquin, and Delta. Large increases in wastewater discharges into the Sacramento and San Joaquin River and their tributaries are predicted as a result of the population growth in the Central Valley. These increases could increase the pollutant concentrations in Delta water significantly. Some of these projects are the proposed expansions of the Sacramento Regional Wastewater Treatment Plant, West Sacramento Wastewater Treatment Plant, Stockton Wastewater Treatment Plant, and the new Mountain House Community Services District Wastewater Treatment Plant.

CCWD requests that adequate mitigation measures be proposed, adopted, and implemented for all adverse impacts identified in the above analyses. The EIR should consider, at a minimum, the following mitigation options:

- Adopt best management practices (BMPs) to reduce salt and organic carbon loads in the influent to the treatment plant. Examples of BMPs are the use of efficient water softeners

<sup>3</sup> A description of CCWD's facilities and operations is given in Attachment C.

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- (and only when needed), isolation of industrial and commercial sources with high salt and/or organic carbon load for land disposal or special treatment, and a pollution prevention plan including these and other appropriate measures.
- Pursue pollutant trade-off options to minimize pollutant discharges into the San Joaquin River watershed.
  - Adopt aggressive water conservation measures and maximize water reuse to reduce the volume of wastewater discharge and pollutant loads. These measures would also lead to water supply benefits.
  - Modify the existing treatment process to minimize increase in salinity and the concentrations of other constituents of concern. For example, the use of pulsed ultra-violet irradiation (UV-disinfection) for disinfection could eliminate the salinity increase associated with chlorination and dechlorination of the wastewater. There are also indications that UV-disinfection is more effective against protozoan such as *Cryptosporidium parvum* which are of major concern to drinking water agencies.
  - Use membrane treatment processes such as ultra-filtration for partial removal of organic carbon and pathogens and/or reverse osmosis for removal of most salts and other contaminants. These membrane filtration processes would also produce reusable water. Their costs have decreased significantly over the past ten years and could become economically competitive when the water supply benefits and sales of the reclaimed water are taken into account.

CCWD requests that the economic analyses of these options include their cost impacts on the treatment and other operating costs to affected urban agencies, including CCWD. Any externalization of wastewater treatment costs to urban agencies should be disclosed.

CCWD further requests that the EIR include a detailed analysis on the impacts of the proposed discharge at nearby water quality compliance locations in the 1995 Water Quality Control Plan adopted by the State Water Resources Control Board. Salinity objectives at Old River at Tracy Road Bridge, Old River near Middle River, and San Joaquin River at Brandt Bridge (compliance stations P12, C8, C6) have frequently been exceeded in the past. The increase in the high salinity Tracy WWTP discharge would further increase the salinity at these locations, especially when the flow barriers in south Delta are operating. The federal Central Valley Project, (CVP) from which CCWD acquires most of its water supply, has been responsible for meeting south Delta salinity standards at these locations, and will likely remain so in the future. A higher salt load due to the proposed discharge would require more "dilution flow" releases from New Melones and reduce water delivery to CVP contractors, potentially injuring CCWD. To avoid any salinity impacts on that part of the Delta and externalizing compliance costs to third parties, CCWD requests that the range of treatment alternatives be expanded to include membrane filtration and reverse osmosis.

Mr. Robert Conant, Senior Planner  
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The EIR also needs to include an alternative that focuses on maximizing wastewater reuse and minimizes the volume and pollutant loads discharged to the Delta waterways, the source of drinking water for over 20 million Californians. Water reuse will avoid a net increase in pollutant load to the Delta, consistent with CALFED's goal for continuous improvement in Delta water quality, as well as making more efficient use of California's scare water supplies. The nearby Mountain House New Community initially made a commitment to maximize reuse of its wastewater and has since committed to tertiary treatment. The City of Tracy wastewater treatment plant expansion EIR must analyze similar methods for protecting Delta water quality.

The cost analyses in the EIR should disclose the potential needs for future upgrades due to new regulatory actions if reverse osmosis, other membrane treatment, or a tertiary level of treatment is not adopted. The total costs could be considerably higher than the additional cost of a higher level of treatment planned from the start. Federal regulatory processes currently under development by the U.S. Environmental Protection Agency include the Total Maximum Daily Load (TMDL) Rule (under the Clean Water Act) and Disinfection By-Products Rule (Stage 2 and beyond) and Long Term Enhanced Surface Water Rule (both under the Safe Drinking Water Act). The state's ongoing regulatory developments include the Basin Plan Triennial Review by the Regional Water Quality Control Board, Central Valley Region, on drinking water needs. These and other regulatory processes could lower the total loads and/or concentrations in wastewater discharges.

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### Attachment B

#### Impacts of Higher Contaminant Concentrations on CCWD and Other Urban Water Agencies Using Delta Water

Approximately 80% of the water diverted from central and south Delta for municipal and industrial beneficial uses flows through Old River. Currently, the stretch of Old River where the City of Tracy discharges frequently exceeds Basin Plan and Water Quality Control Plan targets, and would therefore have little "assimilation capacity" for additional discharges. Furthermore, degradation in the water quality of this inflow, such as those caused by increased concentrations of salt, organic carbon, or pathogens (e.g. *Giardia lamblia* and *Cryptosporidium parvum*), would lead to a corresponding degradation at the urban water intakes in the Delta. Higher pollutant concentrations in the source water would increase the concentrations of disinfection by-products in the treated water and increase costs to urban water agencies using Delta water. More specifically, degradation of Delta water quality could injure CCWD and other water users<sup>4</sup> in the following ways:

- Increased salinity (quantified as total dissolved solids, chloride, bromide, and sodium concentrations) will impact industrial and municipal uses by increasing corrosion and causing health problems. Increased salinity in source water also reduces the potential and feasibility of recycling (water reuse) and conjunctive uses. A higher bromide in source water leads to higher disinfection by-products such as bromate and brominated trihalomethanes, makes it more difficult for urban agencies to meet increasingly stringent drinking water regulations and increases health risk.
- The water quality goal of CCWD's \$450,000,000 Los Vaqueros Project is to provide its customers with a delivered water quality of 65 mg/L chloride or less. The Los Vaqueros Project improves the quality of CCWD's supply by storing high quality Delta water (typically water with a chloride concentration of less than 50 mg/L), when it is available, in the Los Vaqueros Reservoir for blending with Delta diversions later on when salinity in Delta water is high. The Los Vaqueros Project also includes a new Delta intake, at Old River south of Broden Highway (State Route 4), which usually has a better water quality than CCWD's existing intake at Rock Slough. A higher salinity in the Delta will decrease the amount of water available for storage in the Los Vaqueros Reservoir and increase the salinity of both the stored water and water diverted directly from the Delta. These impacts would reduce the performance of the Los Vaqueros Project by decreasing the frequency CCWD could meet its

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<sup>4</sup> Major urban water intakes in the south and central Delta intakes include CCWD's Contra Costa Canal intake off Rock Slough and Los Vaqueros intake at Old River south of Broden Highway (State Route 4), State Water Project's Clifton Court Forebay intake, and Central Valley Project's Tracy Pumping Plant intake.

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delivered water salinity goal and by increasing the pumping cost associated with replenishing blending water releases from the Reservoir.

- Higher pathogens level (in particular protozoan such as *Cryptosporidium parvum* and *Giardia lamblia*) in the source water requires a higher level of disinfection. This leads to higher disinfection by-products concentrations, increases public health risk, and makes it more difficult to comply with existing and future drinking water regulations. It also increases treatment cost.
- A higher particulate and dissolved organic carbon concentration in the source water requires a higher disinfectant (ozone) dosage and increases treatment cost. A higher ozone dosage also increases the level of disinfection by-products such as bromate in the treated water, increases health risk to the public, and makes it more difficult to comply with existing and future drinking water regulations.
- Higher concentrations of heavy metals and other toxins could lead to exceedance of national drinking water standards for primary pollutants. The number of regulated pollutants has been increasing steadily in the past thirty years and will increase further under the recently re-authorized federal Safe Drinking Water Act.

The California water user community has expended a great deal of effort to develop programs for improving water quality in the Delta. Contra Costa Water District, in collaboration with a number of urban water agencies, has been an active participant in the development and implementation of the Bay-Delta Accord, implementation of the Central Valley Project Improvement Act, and the CALFED Bay-Delta Program. CCWD has contributed both funding and in-kind services to stop degradation of Delta water quality and improve conditions in the Delta. The District believes that source control is one of the critical elements in these efforts. Potential degradation of Delta water quality, if left unmitigated, will significantly reduce the benefits or nullify these efforts which have been made at significant costs.

Mr. Robert Conant, Senior Planner  
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### Attachment C CCWD Operations and Facilities

The Contra Costa Water District (CCWD) serves approximately 430,000 people throughout north-central and east Contra Costa County. Its clients also include 10 major industries, 36 smaller industries and businesses, and 50 agricultural users. CCWD operates raw water distribution facilities, water treatment plants, and treated water distribution facilities. CCWD supplies raw and treated water to Antioch, Concord, Diablo Water District (serving Oakley), Pittsburg, Southern California Water Company (serving Bay Point), Martinez, and parts of Pleasant Hill and Walnut Creek.

CCWD's treated water service area encompasses all or part of the cities of Concord, Clayton, Clyde, Pleasant Hill, Walnut Creek, Martinez, and Port Costa. Treated water for this service area is provided from the District's Bollman Water Treatment Plant in Concord. The 75 MGD Bollman facility uses chlorination for pre-oxidation and intermediate ozonation. CCWD also supplies treated water to the Diablo Water District (DWD), which serves customers in Oakley from a plant jointly owned by CCWD and DWD. This Randall-Bold Water Treatment Plant is a 40 MGD direct/deep-bed filtration plant and utilizes both pre- and post-ozonation to provide a high quality drinking water to the customers in its service area.

CCWD is entirely dependent on the Delta for its water supply. The Contra Costa Canal and the recently completed Los Vaqueros Project make up CCWD's principal water supply and delivery system. CCWD diverts unregulated flows and regulated flows from storage releases from Shasta, Folsom, and Clair Engle reservoirs into the Sacramento River as a contractor of the United States Bureau of Reclamation's (Bureau) Central Valley Project (CVP). Under Water Service Contract I75r-3401 (amended) with the Bureau, CCWD can divert and re-divert up to 195,000 acre-feet annually (AFA) of water from Rock Slough and the new Old River intake. Currently, CCWD uses between 125,000 and 140,000 AFA. CCWD can also divert up to 26,780 AFA of water from Mallard Slough under its own water rights (Water Rights License No.3167 and Permit No.19856). The City of Antioch and Gaylord Container, both customers of the District, also have water rights permits to divert water from the Delta.

CCWD has obtained its water supply from the Delta since 1940. Delta water is subject to large variations in salinity and mineral concentrations. This water supply has also made CCWD and its customers vulnerable to any man-made or natural sources that could degrade Delta water quality. Degradation in water quality is objectionable to CCWD customers, costly to residential and industrial users, and increases public health risk. The most recent federal drinking water regulations promulgated in December 1998 impose stringent limits on disinfection by-products in treated water. To ensure that the bromate and total trihalomethanes (the principal disinfection by-products) standards are met, a low bromide level in the source water is critical. Bromide level is directly proportional to the chloride concentration in Delta water.

Mr. Robert Conant, Senior Planner  
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Contra Costa Water District is committed to supplying its customers with the highest quality water practicable and providing all reasonable protection of the supply from any known or potential source of hazardous contamination. CCWD Resolution No. 88-45 states in part that:

*"CCWD is committed to reducing the concentration of sodium and chloride in the District's water, thereby reducing household and landscape irrigation concerns and industrial and manufacturing costs caused by the fluctuating sodium and chloride level of CCWD's Delta source...."*

In May 1987, CCWD's Board of Directors adopted water quality objectives for water distributed within its service area. The acceptable concentration levels for sodium and chloride were established at 50 milligrams per liter (mg/L) and 65 mg/L, respectively. In 1988, the voter-constituents of CCWD approved the issuance of bonds to finance the \$450,000,000 Los Vaqueros Project. The primary purposes of the Los Vaqueros Project are to improve the quality of water supplied to CCWD customers and minimize seasonal quality changes, and to improve the reliability of the emergency water supply available to CCWD. The Los Vaqueros Project consists of a reservoir with 100,000 acre-feet of storage, a new point of diversion (at Old River south of the Highway 4 crossing) which operates in conjunction with the current Rock Slough diversion point, water conveyance and delivery facilities, pumping plants, and other facilities.

On June 2, 1994, the State Water Resources Control Board issued Decision 1629 which gives CCWD additional rights to divert and store water for beneficial uses. The State Board subsequently issued Water Rights Permits No. 20749 and 20750 for filling Los Vaqueros Reservoir from the new intake at Old River near Highway 4 and diversion and storage of the water of Kellogg Creek. These rights are in addition to the contractual rights to divert and store water furnished through the CVP. Construction of the reservoir began in September 1994 and was completed in January 1998. Diversion from the Old River intake for delivery to CCWD's service area began in the summer of 1997. Up to 95,850 AFA may be diverted for storage between November 1 of each year to June 30 of the succeeding year under Water Rights Permit No. 20749. On January 28, 1999, the Los Vaqueros Reservoir was filled to 100,000 acre-feet for the first time. In February 1999, CCWD released water from the reservoir for the first time for use in the District's service area. These releases were also scheduled to allow CCWD to cease all diversions during fish sensitive periods and provide benefits to the Delta ecosystem.

A key to successful performance of the Los Vaqueros Project is the District's ability to fill and continue to refill the reservoir from Old River with high quality water, and to use that water for blending when salinity at the District's Delta intakes exceed the 65 mg/L chloride goal. Any increase in Delta salinity caused by new Bay-Delta projects will increase the demand on blending water from the reservoir and at the same time reduce the availability of high quality water for refilling. The District and its 430,000 customers will be impacted through higher pumping costs to replace the extra blending water that is released, through additional treatment costs, and through increased corrosion and health risks of a higher salinity water supply.

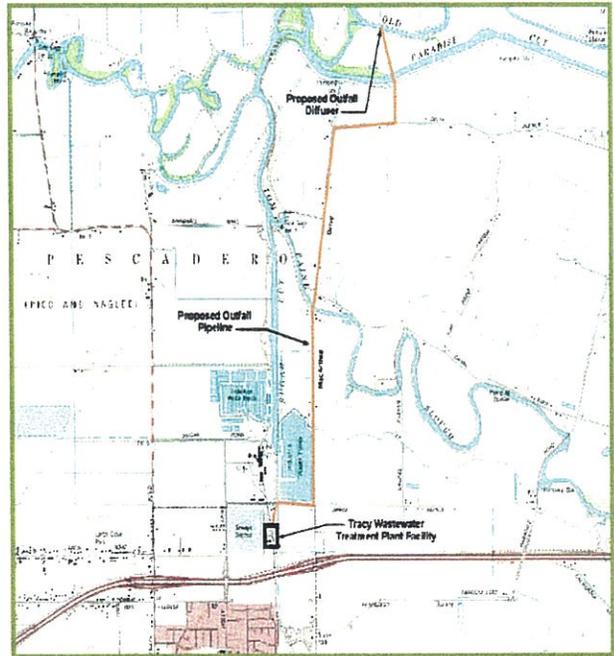
V. KUMAR

# TRACY WASTEWATER TREATMENT PLANT EXPANSION

## DRAFT ENVIRONMENTAL IMPACT REPORT

### TECHNICAL APPENDICES

SCH No. 2000012039



*PREPARED FOR:*

**CITY OF TRACY**  
520 TRACY BOULEVARD  
TRACY, CA 95376

*PREPARED BY:*



10461 OLD PLACERVILLE ROAD, SUITE 110  
SACRAMENTO, CA 95827

OCTOBER 2001

---

**DRAFT ENVIRONMENTAL IMPACT REPORT**

**TECHNICAL APPENDICES**

**FOR THE**

**TRACY WASTEWATER TREATMENT PLANT EXPANSION**

---

**SCH No. 2000012039**

*Prepared for:*

**CITY OF TRACY**  
Public Works Department  
520 Tracy Boulevard  
Tracy, CA 95376  
Contact: Mr. Steve Bayley

*Prepared by:*

**PACIFIC MUNICIPAL CONSULTANTS**  
10461 Old Placerville Road, Suite 110  
Sacramento, CA 95827  
916.361.8384  
Fax: 916.361.1574

**OCTOBER 2001**

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- Appendix C Acoustical Terminology
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- Appendix E Larry Walker Associates - Water Quality Analysis of Surface Water Discharge
- Appendix F Tables of Data Output for Water Quality Analysis
- Appendix G RMA Report - Analysis of Fate and Water Quality Impacts of the City of Tracy Discharge
- Appendix H Foothill Associates – Plant and Animal Species
- Appendix I Foothill Archaeological Services - Cultural Resources Survey and Assessment

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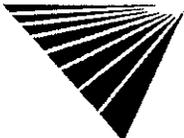
APPENDIX B  
HAZARDOUS MATERIALS DATABASE SEARCH

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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: SITE 2 SITE 2 LAUREL TOM PAINE LAUREL TOM PAINE TRACY, CA Latitude/Longitude: ( 37.781146, 121.396913 )	GAYLE LYTLE CH2M HILL 1111 BROADWAY SUITE 1200 OAKLAND, CA 94607

Site Distribution Summary			<i>within 1/2 mile</i>
<b>Agency / Database - Type of Records</b>			
<b>A) Databases searched to 1/2 mile:</b>			
US EPA	NPL	National Priority List	0
US EPA	CORRACTS	RCRA Corrective Actions (w/o TSD)	0
US EPA	TSD CORRACTS	RCRA Corrective Actions and associated TSD	0
STATE	SPL	State equivalent priority list	0
US EPA	RCRA-TSD	RCRA permitted treatment, storage, disposal facilities	0
STATE	SCL	State equivalent CERCLIS list	0
US EPA	CERCLIS/ NFRAP	Sites under review by US EPA	0
STATE/ REG/CO	LUST	Leaking Underground Storage Tanks	5
STATE/ REG/CO	SWLF	Solid waste landfills, incinerators, or transfer stations	0
STATE	DEED RSTR/ BORDER ZONE	Sites with deed restrictions	0
STATE	CORTESE	State index of properties with hazardous waste	2
STATE	TOXIC PITS	Toxic Pits cleanup facilities	0
US EPA	FINDS	Facility Index System	4
USGS/STATE	WATER WELLS	Federal and State Drinking Water Sources	9
US EPA	TRIS	Toxic Release Inventory database	1
STATE	UST	Registered underground storage tanks	5
STATE/ CO	AST	Registered aboveground storage tanks	2
STATE	CALFID	California Facility Inventory	14
US EPA	LG GEN	RCRA registered large generators of hazardous waste	0
US EPA	SM GEN	RCRA registered small generators of hazardous waste	2
US EPA	RCRA Viol	RCRA violations/enforcement actions	0
US EPA	ERNS	Emergency Response Notification System of spills	4
STATE	SPILLS	State spills list	1



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

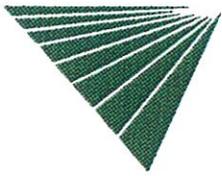
Report ID: 381284001

Date of Report: January 17, 2001

Version 2.7

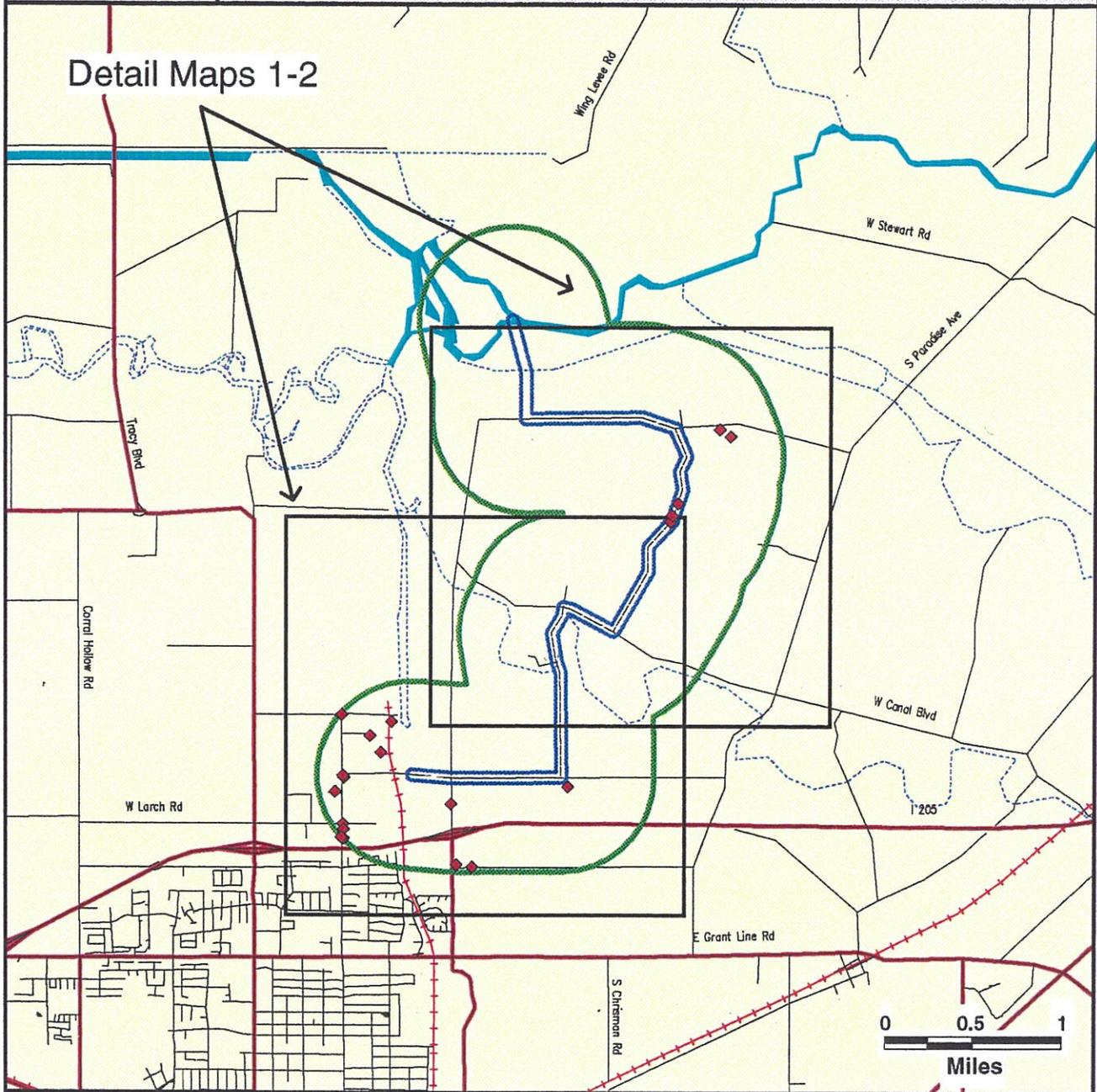
Page #1





# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## Overview Map



Detail Maps 1-2

Subject Centerline



Search Area



Risk Sites



Risk Sites Plotted as Polygons



Highways and Major Roads



Rivers or Water Bodies



Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.

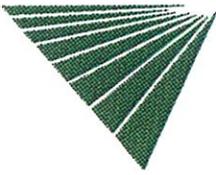


# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## Detail Map 1

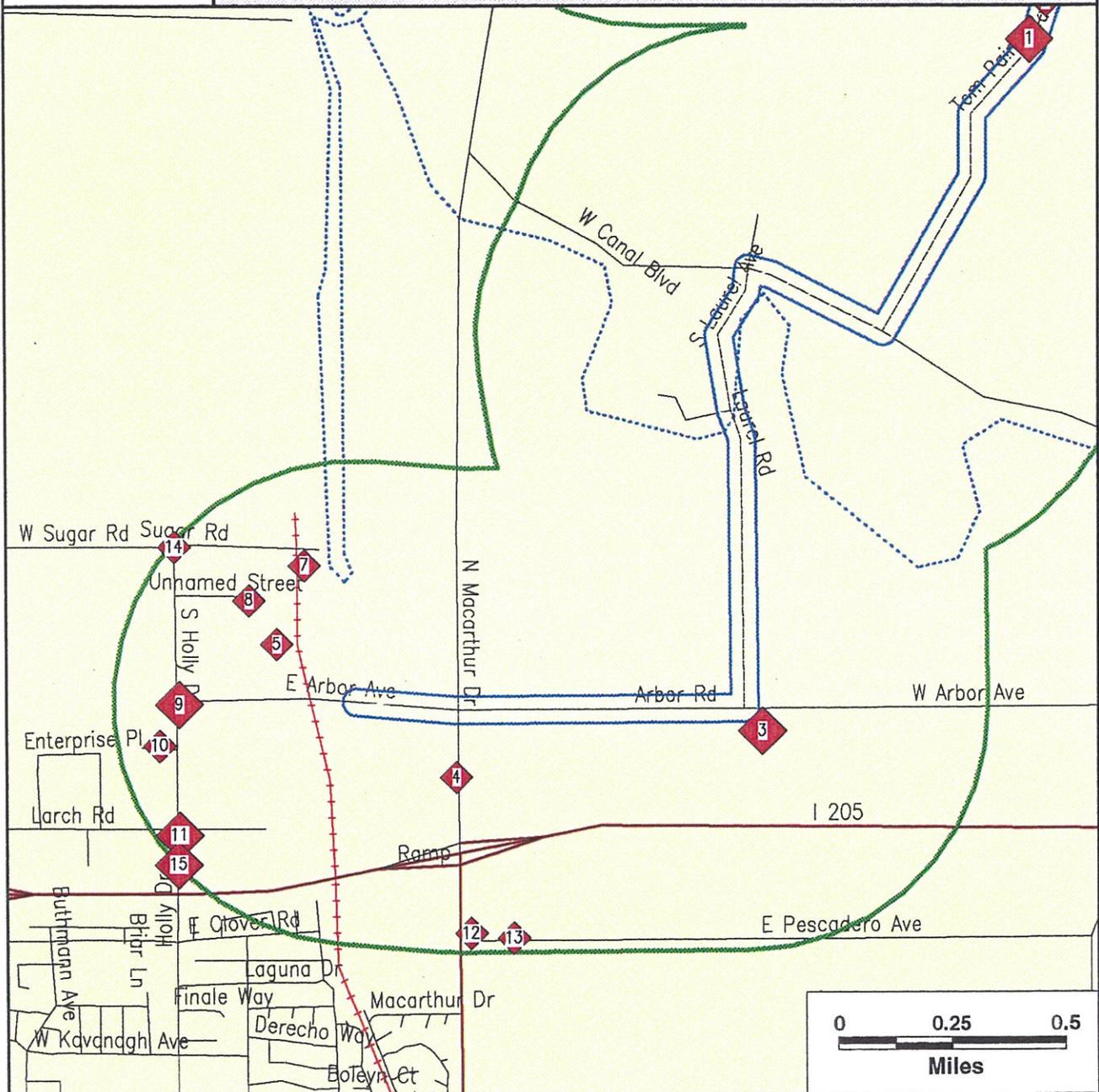


<b>Subject Centerline</b>  <b>Search Area</b> 	<b>Category:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>Risk Sites Plotted as Polygons</b> 
	<b>Single Sites</b> 					
<b>Multiple Sites</b> 						
 Highways and Major Roads  Roads  Railroads  Rivers or Water Bodies  Utilities	<p>Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.</p>					



# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## Detail Map 2

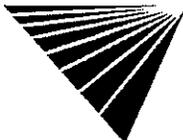


<b>Subject Centerline</b>  <b>Search Area</b> 	<b>Category:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>Risk Sites Plotted as Polygons</b> 
	<b>Single Sites</b>					
	<b>Multiple Sites</b>					
 Highways and Major Roads  Roads  Railroads  Rivers or Water Bodies  Utilities						
Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.						

# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/2 mile)	A																							
		VISTA ID	NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS
1	SIERRA BAY FARM CREDIT SERVICE 18775 TOM PAINE TRACY, CA 95376	7434708							X			X					X		X						
1	1X TOM PAINE PROPERTY 18775 TOM PAINE RD TRACY, CA 95376	7776396																		X					
2	ALVES PERRY 18700 S TOM PAINE TRACY, CA 95376	1239283															X		X						
3	USGS WATER WELL ID #374606121240602, CA	8887659													X										
3	USGS WATER WELL ID #374606121240601, CA	8887658													X										
4	DEPUY ORTHOTECH 1905 N MACARTHUR DR TRACY, CA 95376	4062498												X					X		X				
5	USGS WATER WELL ID #374616121251601, CA	8887680													X										
6	USGS WATER WELL ID #374751121231001, CA	8887841													X										
6	USGS WATER WELL ID #374749121230601, CA	8887837													X										
7	USGS WATER WELL ID #374625121251201, CA	8887699													X										
8	USGS WATER WELL ID #374621121252001, CA	8887694													X										
9	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 0	64862083							X																X



X = search criteria; \* = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

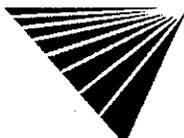
Report ID: 381284001

Date of Report: January 17, 2001

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MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/2 mile)	A																							
		VISTA ID	NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS
9	HOLLY SUGAR CORP. 20500 HOLLY DR. TRACY, CA	64505946																X							
9	HOLLY SUGR 20500 HOLLY DRIVE TRACY, CA 95376	198390						X				X					X			X				X	
9	HOLLY SUGAR CORP. TRACY FACTOR 20500 TRACY, CA 95376	593863												X		X				X					
10	TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 95376	428463												X						X		X			
11	USGS WATER WELL ID #374555121253001 , CA	8887633													X										
11	UNKNOWN 4200 N. HOLLY TRACY, CA 95376	8579359																						X	
12	USGS WATER WELL ID #374543121244801 , CA	8887610													X										
13	YELLOW FREIGHT SYSTEM 1535 E. PESCADERO AVE TRACY, CA 95376	3996560															X	X	X					X	
14	SOLAR DRY SYSTEMS 9801 SUGAR RD TRACY, CA 95376	7719383																		X					
15	TRACY SEWAGE TRT PLAN 3900 HOLLY DRIVE TRACY, CA 95376	1269563						X					X			X				X					
15	TRACY WASTE WATER 3900 HOLLY DR TRACY, CA 95376	64860635						X																	
15	TRACY, CITY OF 3900 HOLLY DR TRACY, CA 95376	4986496																		X					
15	SIERRA CHEMICAL 3900 HOLLY DRIVE TRACY, CA 95376	12711073																						X	
15	3900 HOLLY DR TRACY, CA 95376	7776554																		X					
15	A.B. AUTOMOTIVE 3941 HOLLY DR TRACY, CA 95376	7777563																		X					



X = search criteria; \* = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284001

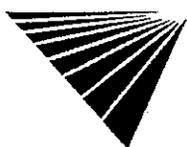
Date of Report: January 17, 2001

Version 2.7

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MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/2 mile)	A																						
		NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS
15	TRACY SPEED MACHINE 3941 HOLLY DR TRACY, CA 95376																		X					

VISTA ID  
7777564



X = search criteria; • = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

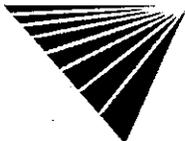
Report ID: 381284001

Date of Report: January 17, 2001

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UNMAPPED SITES	A																								
	VISTA ID	NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS	
M M BUILDERS SUPPLY 8111 BUS LOOP 205 W TRACY, CA 0	64861325								X																
STRONG PROPERTY 5157 BUS LOOP 205 W TRACY, CA 0	64861595								X																



X = search criteria; • = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284001

Date of Report: January 17, 2001

Version 2.7

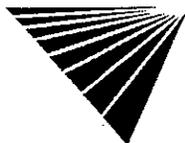
Page #8

# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## DETAILS

### PROPERTY AND THE ADJACENT AREA (within 1/2 mile)

<b>VISTA Address*:</b>	<b>SIERRA BAY FARM CREDIT SERVICE</b> <b>18775 TOM PAINE</b> <b>TRACY, CA 95376</b>	<b>VISTA ID#:</b>	7434708	<b>Map ID</b> <b>1</b>
		<b>Distance/Direction:</b>	0.00 MI / NA	
		<b>Plotted as:</b>	Point	
<b>STATE UST - State Underground Storage Tank / SRC# 45</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	SAME AS ABOVE			
<b>Underground Tanks:</b>	1			
<b>Aboveground Tanks:</b>	NOT REPORTED			
<b>Tanks Removed:</b>	NOT REPORTED			
<b>Tank ID:</b>	1001U	<b>Tank Status:</b>	CLOSED REMOVED	
<b>Tank Contents:</b>	LEADED GAS	<b>Leak Monitoring:</b>	MONITOR PRESENT	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	UNKNOWN	
<b>Tank Size (Units):</b>	350 (GALLONS)	<b>Tank Material:</b>	UNKNOWN	
<b>CORTESE / SRC# 53</b>		<b>Agency ID:</b>	390664	
<b>Agency Address:</b>	SIERRA-BAY FARM CREDIT SE 18775 TOM PAINE STOCKTON, CA 95376			
<b>List Name:</b>	LEAKING TANK			
<b>Site ID:</b>	390664			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	SIERRA BAY FARM CREDIT SERVICE 18775 TOM PAINE RD STOCKTON, CA 95376			
<b>Phone:</b>	2093686175			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
UTNKI	NOT REPORTED	931022	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>	P.O. BOX 8070			
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	95376			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	SIERRA-BAY FARM CREDIT SERVICE 18775 TOM PAINE RD STOCKTON, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
LTNKA	390664	970707	NOT REPORTED	NOT REPORTED
<b>Mailing City:</b>	STOCKTON			
<b>Mailing Zip:</b>	95209			



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284001

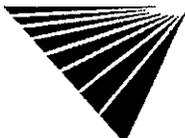
Date of Report: January 17, 2001

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PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.

STATE LUST - State Leaking Underground Storage Tank / SRC# 164		EPA/Agency ID:	N/A
Agency Address:	SIERRA-BAY FARM CREDIT SERVICE 18775 TOM PAINE RD STOCKTON, CA 95209		
Site Name:	SIERRA-BAY FARM CREDIT SERVICE		
Street Number:	18775		
Street Name:	TOM PAINE RD		
City:	STOCKTON		
Zip:	95209		
Cross Street:	CANAL ST		
Region:	05		
County:	39		
Case Number:	390664		
Case Type:	ACQUIFIER		
Lead Agency:	LOCAL AGENCY		
Local Agency:	39000		
Status:	CASE CLOSED		
Substance:	HYDROCARBONS		
Abatement Method:	AGENCY CODE0		
Enforcement Type:	NONE TAKEN		
Funding:	AGENCY CODE0		
How LUST was Discovered:	TANK CLOSURE		
How LUST was Stopped:	AGENCY CODE0		
MTBE Tested:	MTBE NOT DETECTED		
Soil Qualifier:	<		
MTBE in Soil:	5		
Groundwater Qualifier:	<		
MTBE in Groundwater:	5		
Program:	LOCAL IMPLEMENTING AGENCY UST		
Priority:	1		
Responsible Party:	SIERRA-BAY FARM CREDIT SERVICE		
Staff:	WMH		
Suspended:	N		
Latitude:	38.032936		
Longitude:	-121.343016		
Leak Cause:	OVERFILL		



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284001

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Leak Source:</b>	UNKNOWN
<b>Date Leak Confirmed:</b>	9/18/1991
<b>Date the Case was Closed:</b>	11/1/1999
<b>Date Leak was Discovered:</b>	9/18/1991
<b>Enter Date:</b>	9/23/1991
<b>MTBE Date:</b>	4/4/1999
<b>Report Date:</b>	9/18/1991
<b>Review Date:</b>	4/24/2000
<b>Fields Not Reported by the Source Agency for this Site:</b>	County Code(1), Cleanup Fund ID(1), Interim Remedial Action(1), Local Case Number(1), Operator(1), Quantity of Primary Substance Leaked (G)(1), Basin(1), Beneficial Use(1), Summary(1), Date Prelim Site Assessment Workplan Sub(1), Date Preliminary Site Assessment Began(1), Date Pollution Characterization Began(1), Date Remediation Plan Submitted(1), Date Remedial Action Underway(1), Date Post Remedial Action Monitoring Beg(1), Date of Enforcement Action(1), Stop Date(1)

<b>VISTA Address*:</b>	<b>1X TOM PAINE PROPERTY 18775 TOM PAINE RD TRACY, CA 95376</b>	<b>VISTA ID#:</b>	7776396
		<b>Distance/Direction:</b>	0.00 MI / NA
		<b>Plotted as:</b>	Point

Map ID  
**1**

<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b>	N/A
-------------------------	-----------------------	-----

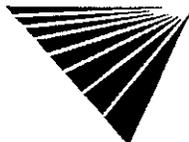
<b>Agency Address:</b>	1X TOM PAINE PROPERTY 18775 TOM PAINE RD STOCKTON, CA 95376			
<b>Phone:</b>	2099313770			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
HAZNT	CAC000623184	931008	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>	18775 TOM PAINE AVE.			
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	953760000			

<b>VISTA Address*:</b>	<b>ALVES PERRY 18700 S TOM PAINE TRACY, CA 95376</b>	<b>VISTA ID#:</b>	1239283
		<b>Distance/Direction:</b>	0.00 MI / NA
		<b>Plotted as:</b>	Point

Map ID  
**2**

<b>STATE UST - State Underground Storage Tank / SRC# 45</b>	<b>EPA/Agency ID:</b>	N/A
---	-----------------------	-----

<b>Agency Address:</b>	SAME AS ABOVE		
<b>Underground Tanks:</b>	2		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	NOT REPORTED		
<b>Tank ID:</b>	1001U	<b>Tank Status:</b>	OTHER
<b>Tank Contents:</b>	LEADED GAS	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	UNKNOWN
<b>Tank Size (Units):</b>	1000 (GALLONS)	<b>Tank Material:</b>	UNKNOWN
<b>Tank ID:</b>	1001U	<b>Tank Status:</b>	OTHER
<b>Tank Contents:</b>	DIESEL	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	UNKNOWN
<b>Tank Size (Units):</b>	1000 (GALLONS)	<b>Tank Material:</b>	UNKNOWN



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		ALVES PERRY 18700 S. TOM PAINE TRACY, CA 95376	
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b> <b>Cortese Flag:</b>
UTNKI	NOT REPORTED	931022	NOT REPORTED      NOT REPORTED
<b>Mailing Address:</b>		18700 S TOM PAINE	
<b>Mailing City:</b>		TRACY	
<b>Mailing Zip:</b>		95376	

VISTA Address*:	<b>USGS WATER WELL ID #374606121240602</b> CA	VISTA ID#:	8887659
		Distance/Direction:	0.03 MI / S
		Plotted as:	Point

Map

**3**

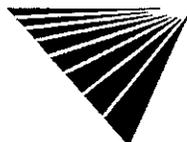
<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374606121240602	
<b>Use:</b>		STOCK	
<b>Depth:</b>		96.00	
<b>Latitude:</b>		37.768333333333	
<b>Longitude:</b>		-121.4016666666	
<b>Quadrangle Name:</b>		UNION ISLAND	
<b>Section Township Range:</b>		NWSESES10T02SR05EM	
<b>Surface Elevation:</b>		16.00	
<b>Static Water Level:</b>		12.00	
<b>Date Well Drilled:</b>		10/10/1975	
<b>County FIPS:</b>		6077	

VISTA Address*:	<b>USGS WATER WELL ID #374606121240601</b> CA	VISTA ID#:	8887658
		Distance/Direction:	0.03 MI / S
		Plotted as:	Point

Map

**3**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374606121240601	
<b>Use:</b>		DOMESTIC	
<b>Depth:</b>		102.0	
<b>Latitude:</b>		37.768333333333	
<b>Longitude:</b>		-121.4016666666	
<b>Surface Elevation:</b>		16.00	
<b>Static Water Level:</b>		10.00	
<b>Date Well Drilled:</b>		01/01/1965	
<b>County FIPS:</b>		6077	



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

VISTA Address*:	<b>DEPUY ORTHOTECH 1905 N MACARTHUR DR TRACY, CA 95376</b>	VISTA ID#:	4062498
		Distance/Direction:	0.12 MI / SW
		Plotted as:	Point

Map ID

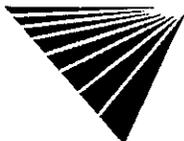
**4**

<b>FINDS - Facility Index System / SRC# 6</b>	EPA/Agency ID:	N/A
---	----------------	-----

Agency Address:	<i>DEPUY ORTHOTECH 1905 N MACARTHUR DR TRACY, CA 953760000</i>		
Indian Land:	<i>NO</i>	Federal Facility:	<i>NO</i>
Duns #:	<i>NOT REPORTED</i>		
SIC Code:	<i>NOT REPORTED NOT REPORTED</i>		
Program Name:	<i>RCRIS</i>		
Agency ID:	<i>CAD983664541</i>		

<b>RCRA-SmGen - RCRA-Small Generator / SRC# 15</b>	Agency ID:	CAD983664541
--	------------	--------------

Agency Address:	<i>SAME AS ABOVE</i>
EPA Region:	<i>09</i>
Mailing Address:	<i>1905 N MACARTHUR DR</i>
City, State, Zip:	<i>TRACY, CA 95376</i>
Significant Non-Complier Indicator:	<i>HANDLER IS NOT A SIGNIFICANT NON-COMPLIER AT BEGINNING OF FISCAL YEAR.</i>
RCRA Facility Classification(s):	<i>HANDLER IS NOT A MEMBER OF THE SUBJECT TO CORRECTIVE ACTION UNIVERSE.</i>
Notification Type:	<i>NOTIFICATION DATA - CORE</i>
Contact:	<i>GREGORY BIDLACK VP MFG</i>
Title:	<i>BIDLACK VP MFG</i>
Phone:	<i>(209) 832-5200</i>
Contact Address:	<i>1905 N MACARTHUR DR</i>
Owner/Operator Indicator:	<i>PREVIOUS OWNER</i>
Owner/Operator Type:	<i>PRIVATE</i>
Owner/Operator Name:	<i>ORTHO TECH</i>
Phone:	<i>(209) 832-5200</i>
Address:	<i>1905 N MACARTHUR</i>
Owner/Operator Indicator:	<i>CURRENT OWNER</i>
Owner/Operator Type:	<i>PRIVATE</i>
Owner/Operator Name:	<i>DEPUY INC</i>
Phone:	<i>(219) 267-8143</i>
Address:	<i>PO BOX 988</i>
Generator Indicator:	<i>SMALL QUANTITY GENERATOR</i>
Transporter Indicator:	<i>UNVERIFIED</i>
TSD Indicator:	<i>NOT A TSD, UNVERIFIED</i>
Bumer/Blender Indicator:	<i>UNVERIFIED</i>



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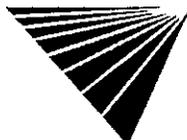
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>HWF Market to Bumer Indicator:</b>	<i>NO GENERATOR-MARKETING-TO-BURNER ACTIVITY</i>
<b>HWF Other Marketer Indicator:</b>	<i>NO OTHER MARKETER ACTIVITY</i>
<b>HWF Burner Indicator:</b>	<i>NO BURNER ACTIVITY</i>
<b>Used Oil Fuel Burner Indicator:</b>	<i>NO MARKETING TO BURNER ACTIVITY</i>
<b>Used Oil Fuel Burner Indicator:</b>	<i>NO USED OIL FUEL BURNER ACTIVITY</i>
<b>Spec Used Oil Marketing Indicator:</b>	<i>NO SPEC. USED OIL FUEL MARKETING ACTIVITY</i>
<b>Utility Boiler Indicator:</b>	<i>NO ACTIVITY</i>
<b>Industrial Boiler Indicator:</b>	<i>NO ACTIVITY</i>
<b>Industrial Furnace Indicator:</b>	<i>NO ACTIVITY</i>
<b>Underground Injection Control Indicator:</b>	<i>NO ACTIVITY</i>
<b>Used Oil Recycler Indicator:</b>	<i>UNVERIFIED</i>
<b>Used Oil Transporter Indicator:</b>	<i>NO USED OIL TRANSPORT/TRANSFER FACILITY ACTIVITY</i>
<b>Used Oil Processor/Re-refiner:</b>	<i>NO PROCESS/RE-REFINE ACTIVITY</i>
<b>Air Transporter Indicator:</b>	<i>DOES NOT TRANSPORT BY AIR</i>
<b>Rail Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY RAIL</i>
<b>Road Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY ROAD</i>
<b>Water Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY WATER</i>
<b>Generator Status:</b>	<i>RCRA REGULATED</i>
<b>Information Source:</b>	<i>NOTIFICATION</i>
<b>Date Submitted:</b>	<i>04/28/1997</i>
<b>Fields Not Reported by the Source Agency for this Site:</b>	<i>Other Transportation Indicator(1), Generator Status Description(1), Transporter Status Description(1), TSD Status Description(1), Burner/Blender Status Description(1), Transporter Status(1), TSD Status(1), Burner/Blender Status(1), Used Oil Recycler RCRA Regulatory Status(1)</i>
<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b> N/A
<b>Agency Address:</b>	<i>ORTHO TECH INC 1905 MACARTHUR TRACY, CA 953760000</i>
<b>Regulated By:</b>	<b>ID #:</b>
<i>HAZNT</i>	<i>CAD983664541</i>
<b>Record Creation Date:</b>	<b>SIC Code:</b>
<i>931012</i>	<i>NOT REPORTED</i>
<b>Cortese Flag:</b>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>	<i>1905 MACARTHUR</i>
<b>Mailing City:</b>	<i>TRACY</i>
<b>Mailing Zip:</b>	<i>953760000</i>



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		ORTHO TECH INC 1905 MACARTHUR TRACY, CA 953760000	
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b> <b>Cortese Flag:</b>
<i>FINDS</i>	<i>CAD983664541</i>	<i>940127</i>	<i>NOT REPORTED</i> <i>NOT REPORTED</i>
<b>Mailing City:</b>		TRACY	
<b>Mailing Zip:</b>		95376	

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374616121251601</b>	<b>VISTA ID#:</b>	8887680
	CA	<b>Distance/Direction:</b>	0.19 MI / SW
		<b>Plotted as:</b>	Point

Map ID  
**5**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374616121251601	
<b>Use:</b>		INDUSTRIAL	
<b>Depth:</b>		417.0	
<b>Latitude:</b>		37.771111111111	
<b>Longitude:</b>		-121.421111111111	
<b>Surface Elevation:</b>		14.00	
<b>Date Well Drilled:</b>		01/01/1935	
<b>County FIPS:</b>		6077	

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374751121231001</b>	<b>VISTA ID#:</b>	8887841
	CA	<b>Distance/Direction:</b>	0.19 MI / NE
		<b>Plotted as:</b>	Point

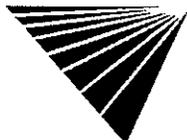
Map ID  
**6**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374751121231001	
<b>Use:</b>		PUBLIC SUPPLY	
<b>Depth:</b>		700.0	
<b>Latitude:</b>		37.7975	
<b>Longitude:</b>		-121.386111111111	
<b>Surface Elevation:</b>		8.00	
<b>Static Water Level:</b>		32.00	
<b>Date Well Drilled:</b>		01/01/1953	
<b>County FIPS:</b>		6077	

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374749121230601</b>	<b>VISTA ID#:</b>	8887837
	CA	<b>Distance/Direction:</b>	0.24 MI / NE
		<b>Plotted as:</b>	Point

Map ID  
**6**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374749121230601	
<b>Use:</b>		UNUSED	
<b>Depth:</b>		100.0	
<b>Latitude:</b>		37.796944444444	
<b>Longitude:</b>		-121.385	



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Quadrangle Name:</b>	UNION ISLAND
<b>Section Township Range:</b>	NESWSES35T01SR05EM
<b>Surface Elevation:</b>	8.00
<b>Static Water Level:</b>	6.00
<b>County FIPS:</b>	6077

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374625121251201</b> CA	<b>VISTA ID#:</b>	8887699
		<b>Distance/Direction:</b>	0.29 MI / SW
		<b>Plotted as:</b>	Point
<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		<b>EPA/Agency ID:</b>	N/A

Map  
**7**

<b>Agency Address:</b>	SAME AS ABOVE
<b>Well ID:</b>	374625121251201
<b>Use:</b>	INDUSTRIAL
<b>Depth:</b>	190.0
<b>Latitude:</b>	37.773611111111
<b>Longitude:</b>	-121.42
<b>Surface Elevation:</b>	10.00
<b>Static Water Level:</b>	.00
<b>Date Well Drilled:</b>	01/01/1957
<b>County FIPS:</b>	6077

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374621121252001</b> CA	<b>VISTA ID#:</b>	8887694
		<b>Distance/Direction:</b>	0.29 MI / SW
		<b>Plotted as:</b>	Point
<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		<b>EPA/Agency ID:</b>	N/A

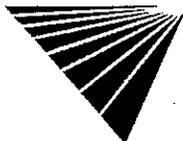
Map  
**8**

<b>Agency Address:</b>	SAME AS ABOVE
<b>Well ID:</b>	374621121252001
<b>Use:</b>	INDUSTRIAL
<b>Depth:</b>	247.0
<b>Latitude:</b>	37.7725
<b>Longitude:</b>	-121.4222222222
<b>Surface Elevation:</b>	10.00
<b>Static Water Level:</b>	.00
<b>Date Well Drilled:</b>	01/01/1957
<b>County FIPS:</b>	6077

<b>VISTA Address*:</b>	<b>HOLLY SUGAR</b> <b>20500 HOLLY DR</b> <b>TRACY, CA 0</b>	<b>VISTA ID#:</b>	64862083
		<b>Distance/Direction:</b>	0.35 MI / SW
		<b>Plotted as:</b>	Point

Map  
**9**

<b>Regional LUST - Regional Leaking Underground Storage Tank / SRC# 145</b>		<b>Agency ID:</b>	2529
<b>Agency Address:</b>	SAME AS ABOVE		
<b>Name:</b>	HOLLY SUGAR		
<b>Address:</b>	20500 HOLLY DR		
<b>City:</b>	TRACY		
<b>State:</b>	CA		
<b>County:</b>	SAN JOAQUIN		



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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

**Staff:** *WMH*  
**Substance:** *GASOLINE*  
**Case Type:** *A*  
**Case Type Description:** *AQUIFER USED FOR DRINKING WATER*  
**Remediation Status:** *3B*  
**Lead Agency:** *LOP*  
**Remediation Status Description:** *SITE ASSESSMENT UNDERWAY*  
**Fields Not Reported by the Source Agency for this Site:** *MTBE Code(1)*

<b>State Spills / SRC# 147</b>	<b>EPA/Agency ID:</b>	N/A
--------------------------------	-----------------------	-----

**Agency Address:** *HOLLY SUGAR - TRACY PLANT  
20500 HOLLY DR  
TRACY, CA 0*  
**Facility:** *HOLLY SUGAR - TRACY PLANT*  
**Address:** *20500 HOLLY DR*  
**City:** *TRACY*  
**County:** *SAN JOAQUIN*  
**Unit:** *AGT*  
**Status:** *RI*  
**Pollutants:** *D*  
**Lead:** *JLH*  
**File:** *A*  
**Report:** *A*

**Fields Not Reported by the Source Agency for this Site:** *Address Description(1)*

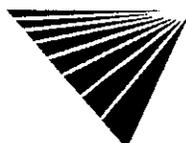
<b>VISTA Address*:</b>	<b>HOLLY SUGAR CORP. 20500 HOLLY DR. TRACY, CA</b>	<b>VISTA ID#:</b>	64505946
		<b>Distance/Direction:</b>	0.36 MI / SW
		<b>Plotted as:</b>	Point

Map ID

**9**

<b>AST - Above Ground Storage Tank / SRC# 60</b>	<b>EPA/Agency ID:</b>	N/A
--	-----------------------	-----

**Agency Address:** *SAME AS ABOVE*  
**Underground Tanks:** *NOT REPORTED*  
**Aboveground Tanks:** *NOT REPORTED*  
**Tanks Removed:** *NOT REPORTED*



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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

VISTA Address*:	<b>HOLLY SUGR 20500 HOLLY DRIVE TRACY, CA 95376</b>	VISTA ID#:	198390
		Distance/Direction:	0.36 MI / SW
		Plotted as:	Point

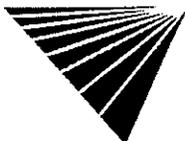
Map

**9**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-0577
Agency Address:	SAME AS ABOVE		
Spill Date Time:	NOVEMBER 6, 1990 04:00:00 PM		
Case Number:	91-0577		
Spill Location:	20500 HOLLY DRIVE		
Source Agency:	E		
Discharger Org:	HOLLY SUGR		
Material Spilled:	FUEL OIL #2, 450.00 (GAL)		
Waterway Affected:	NONE		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		EPA/Agency ID:	N/A
Agency Address:	HOLLY SUGAR HOLLY DRIVE TRACY, CA		
Spill Date Time:	AUGUST 29, 1989 01:12:00 PM		
Spill Location:	HOLLY DRIVE		
Discharger Org:	HOLLY SUGAR		
Material Spilled:	LIMEDUST, 0.00 (UNK)		
Waterway Affected:	NONE		
Fields Not Reported:	Case Number, Source Agency, Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	93-4846
Agency Address:	HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376		
Spill Date Time:	JUNE 21, 1993 08:50:00 AM		
Case Number:	93-4846		
Spill Location:	20500 HOLLY DR		
Source Agency:	E		
Discharger Org:	HOLLY SUGAR CORP		
Material Spilled:	OILS.FUEL:#6, 100.00 (GAL)		
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO



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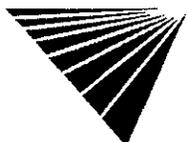
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	92-4219
Agency Address:	HOLLY SUGAR CORP 2500 HOLLY DR TRACY, CA 95376		
Spill Date Time:	MAY 21, 1992 10:25:00 AM		
Case Number:	92-4219		
Spill Location:	2500 HOLLY DR		
Source Agency:	E		
Discharger Org:	HOLLY SUGAR CORP		
Material Spilled:	HYDROCHLORIC ACID (5%), 1000.00 (GAL)		
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-4221
Agency Address:	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376		
Spill Date Time:	MAY 22, 1991 08:30:00 AM		
Case Number:	91-4221		
Spill Location:	20500 HOLLY DR		
Source Agency:	E		
Discharger Org:	HOLLY SUGAR		
Material Spilled:	HYDROCHLORIC ACID, 100.00 (GAL)		
Waterway Affected:	NONE		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-4937
Agency Address:	HOLLY SUGAR 2500 HOLLY DR TRACY, CA 95376		
Spill Date Time:	JULY 8, 1991 08:00:00 AM		
Case Number:	91-4937		
Spill Location:	2500 HOLLY DR		
Source Agency:	E		
Discharger Org:	HOLLY SUGAR		
Material Spilled:	AMMONIA, 0.00 (OTH)		
Waterway Affected:	NONE		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
YES	NO	NO	NO NO



\* VISTA address includes enhanced city and ZIP.

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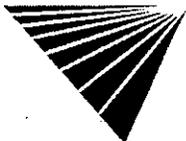
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-1348
<b>Agency Address:</b>	HOLLY SUGAR 20500 HOLLY DR. TRACY, CA 95376		
<b>Spill Date Time:</b>	DECEMBER 13, 1990 01:00:00 PM		
<b>Case Number:</b>	91-1348		
<b>Spill Location:</b>	20500 HOLLY DR.		
<b>Source Agency:</b>	E		
<b>Discharger Org:</b>	HOLLY SUGAR		
<b>Material Spilled:</b>	MURIATIC ACID, 10.00 (GAL)		
<b>Waterway Affected:</b>	NONE		
<b>Fields Not Reported:</b>	Discharger Name, Discharger Phone		
<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>
NO	NO	NO	NO
		<b>Facility Release:</b>	<b>Other Release:</b>
		NO	NO
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	93-4846
<b>Agency Address:</b>	HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376		
<b>Spill Date Time:</b>	JUNE 21, 1993 08:50:00 AM		
<b>Case Number:</b>	93-4846		
<b>Spill Location:</b>	20500 HOLLY DR		
<b>Source Agency:</b>	E		
<b>Discharger Org:</b>	HOLLY SUGAR CORP		
<b>Material Spilled:</b>	OILS, FUEL: #6, 100.00 (GAL)		
<b>Fields Not Reported:</b>	Discharger Name, Discharger Phone, Waterway Affected		
<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>
NO	NO	NO	NO
		<b>Facility Release:</b>	<b>Other Release:</b>
		NO	NO
<b>STATE UST - State Underground Storage Tank / SRC# 45</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	HOLLY SUGAR CORP. 20500 HOLLY TRACY, CA 95376		
<b>Underground Tanks:</b>	1		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	NOT REPORTED		
<b>Tank ID:</b>	001U	<b>Tank Status:</b>	OTHER
<b>Tank Contents:</b>	LEADED GAS	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	UNKNOWN
<b>Tank Size (Units):</b>	1000 (GALLONS)	<b>Tank Material:</b>	BARE STEEL
<b>CORTESE / SRC# 53</b>		Agency ID:	390132
<b>Agency Address:</b>	HOLLY SUGAR 20500 HOLLY TRACY, CA 95376		
<b>List Name:</b>	LEAKING TANK		
<b>Site ID:</b>	390132		
<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>
AGT25	NOT REPORTED	931019	2063
		<b>Cortese Flag:</b>	NOT REPORTED



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Mailing Address:</b>	PO BOX 60
<b>Mailing City:</b>	TRACY
<b>Mailing Zip:</b>	95376
<b>Contact Name:</b>	DAVID DUNCAN
<b>Contact Phone:</b>	8353210

<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b>	N/A
-------------------------	-----------------------	-----

<b>Agency Address:</b>	HOLLY SUGAR CORP. 20500 HOLLY DR TRACY, CA 95376
<b>Phone:</b>	2098353210

Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
UTNKI	NOT REPORTED	931022	NOT REPORTED	NOT REPORTED

<b>Mailing Address:</b>	100 CHASE STONE CENTER
<b>Mailing City:</b>	TRACY
<b>Mailing Zip:</b>	95376

<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b>	N/A
-------------------------	-----------------------	-----

<b>Agency Address:</b>	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376
------------------------	--

Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
ARCPL	CAD981367741	931117	NOT REPORTED	NOT REPORTED

<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b>	N/A
-------------------------	-----------------------	-----

<b>Agency Address:</b>	HOLLY SUGAR CORPORATION SUGAR FACILITY 20500 HOLLY DR TRACY, CA 95376
------------------------	---

Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
FINDS	CAD981367741	940127	NOT REPORTED	NOT REPORTED

<b>Mailing City:</b>	TRACY
<b>Mailing Zip:</b>	95376

<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b>	N/A
-------------------------	-----------------------	-----

<b>Agency Address:</b>	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376
------------------------	--

Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
LTNKA	390132	970707	NOT REPORTED	NOT REPORTED

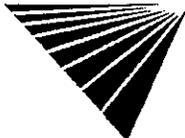
<b>Mailing City:</b>	TRACY
<b>Mailing Zip:</b>	95376

<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b>	N/A
-------------------------	-----------------------	-----

<b>Agency Address:</b>	HOLLY SUGAR CORP., HOLLY SUGAR CORP. 20500 HOLLY DR TRACY, CA
------------------------	---

Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
ATANK	NOT REPORTED	931020	NOT REPORTED	NOT REPORTED

<b>Mailing Address:</b>	P.O. BOX 60
<b>Mailing City:</b>	TRACY
<b>Contact Name:</b>	RICKIE A. SCHILLACI
<b>Contact Phone:</b>	2098353210



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284001

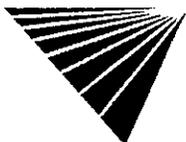
Date of Report: January 17, 2001

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>County UST - County Underground Storage Tank / SRC# 98</b>		<b>Agency ID:</b>	005302
<b>Agency Address:</b>	HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376		
<b>Underground Tanks:</b>	3		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	NOT REPORTED		
<b>Tank ID:</b>	001U	<b>Tank Status:</b>	REMOVED
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	NOT REPORTED (NOT AVAILABLE)	<b>Tank Material:</b>	SINGLE WALLED
<b>Tank ID:</b>	002U	<b>Tank Status:</b>	REMOVED
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	NOT REPORTED (NOT AVAILABLE)	<b>Tank Material:</b>	SINGLE WALLED
<b>Tank ID:</b>	003U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	12000 (GALLONS)	<b>Tank Material:</b>	SINGLE WALLED
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 164</b>		<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b>	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376		
<b>Site Name:</b>	HOLLY SUGAR		
<b>Street Number:</b>	20500		
<b>Street Name:</b>	HOLLY DR		
<b>City:</b>	TRACY		
<b>Zip:</b>	95376		
<b>Cross Street:</b>	LARCH RD		
<b>Region:</b>	05		
<b>County:</b>	39		
<b>Case Number:</b>	390132		
<b>Case Type:</b>	ACQUIFIER		
<b>Lead Agency:</b>	LOCAL AGENCY		
<b>Local Agency:</b>	39000		
<b>Status:</b>	PRELIMINARY SITE ASSESSMENT UNDERWAY		
<b>Substance:</b>	GASOLINE		
<b>Abatement Method:</b>	AGENCY CODE 0		
<b>Enforcement Type:</b>	NONE TAKEN		
<b>Funding:</b>	AGENCY CODE 0		
<b>How LUST was Discovered:</b>	TANK CLOSURE		



\* VISTA address includes enhanced city and ZIP.

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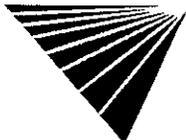
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

How LUST was Stopped:	CLOSE TANK
MTBE Tested:	MTBE DETECTED
Groundwater Qualifier:	=
MTBE in Groundwater:	62
Operator	JOE HIGGS
Program:	LOCAL OVERSIGHT PROGRAM UST
Priority:	1
Responsible Party:	HOLLY SUGAR
Staff:	WMH
Suspended:	N
Latitude:	37.76516
Longitude:	-121.424893
Leak Cause:	UNKNOWN
Leak Source:	UNKNOWN
Summary	UAR FILLED OUT BY SAN JOAQUIN CO AFTER RWQCB REQUESTED ONE IN OCTOBER 1992. TWO GASOLINE TANKS REMOVED 10/18/85
Date Leak was Discovered:	10/18/1985
Enter Date:	3/14/1990
MTBE Date:	10/5/1998
Report Date:	12/11/1987
Review Date:	11/5/1992
Fields Not Reported by the Source Agency for this Site:	County Code(1), Cleanup Fund ID(1), Interim Remedial Action(1), Local Case Number(1), Soil Qualifier(1), MTBE in Soil(1), Program(1), Quantity of Primary Substance Leaked (G)(1), Basin(1), Beneficial Use(1), Date Leak Confirmed(1), Date Prelim Site Assessment Workplan Sub(1), Date Preliminary Site Assessment Began(1), Date Pollution Characterization Began(1), Date Remediation Plan Submitted(1), Date Remedial Action Underway(1), Date Post Remedial Action Monitoring Beg(1), Date the Case was Closed(1), Date of Enforcement Action(1), Stop Date(1)

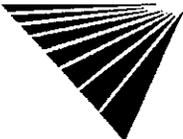
VISTA Address*:	<b>HOLLY SUGAR CORP. TRACY FACTOR 20500 TRACY, CA 95376</b>	VISTA ID#:	1593863
		Distance/Direction:	0.36 MI / SW
		Plotted as:	Point
<b>TRIS - Toxic Release Inventory System / SRC# 2</b>		EPA/Agency ID:	N/A
Agency Address:		SAME AS ABOVE	
<b>Chemical Abstract Service Registry:</b>		<b>Quantity Released:</b>	
HYDROCHLORIC ACID		500.00 (POUNDS)	
AMMONIA		197817.00 (POUNDS)	
<b>FINDS - Facility Index System / SRC# 6</b>		EPA/Agency ID:	N/A
Agency Address:		HOLLY SUGAR CORP. TRACY FACTOR 20500 HOLLY DR. TRACY, CA 95376	
Indian Land:	NOT REPORTED	Federal Facility:	NOT REPORTED
Duns #:	000762169		
SIC Code:	2063 MFG-BEET SUGAR		
SIC Code:	2063 2063		

Map ID  
**9**



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Program Name:</b>		TRIS		
<b>Program Name:</b>		AIR FACILITY SYSTEM		
<b>Agency ID:</b>		95376HLLYS20500		
<b>Agency ID:</b>		CA0079569		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
HAZNT	CAD981367741	931008	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		PO BOX 60		
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		953760000		
<b>Contact Name:</b>		GARCIA L R		
<b>Contact Phone:</b>		2098353210		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1987	391192	931014	2063	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95378		
<b>Contact Name:</b>		MATHEW FENSKE		
<b>Contact Phone:</b>		2098353210		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1988	391192	931014	2063	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95378		
<b>Contact Name:</b>		MATHEW FENSKE		
<b>Contact Phone:</b>		2098353210		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1989	391192	931014	2063	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95378		
<b>Contact Name:</b>		MATHEW FENSKE		
<b>Contact Phone:</b>		2098353210		



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284001

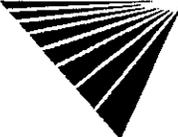
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
S1990	391192	931014	2063	NOT REPORTED	
<b>Mailing City:</b>		TRACY			
<b>Mailing Zip:</b>		95378			
<b>Contact Name:</b>		MATHEW FENSKE			
<b>Contact Phone:</b>		2098353210			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
S1991	391192	931014	2063	NOT REPORTED	
<b>Mailing City:</b>		TRACY			
<b>Mailing Zip:</b>		95378			
<b>Contact Name:</b>		MATHEW FENSKE			
<b>Contact Phone:</b>		2098353210			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
S1992	391192	931014	2063	NOT REPORTED	
<b>Mailing City:</b>		TRACY			
<b>Mailing Zip:</b>		95378			
<b>Contact Name:</b>		MATHEW FENSKE			
<b>Contact Phone:</b>		2098353210			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
M1990	CAD981367741	940218	NOT REPORTED	NOT REPORTED	
<b>Mailing City:</b>		TRACY			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
M1991	CAD981367741	940224	NOT REPORTED	NOT REPORTED	
<b>Mailing City:</b>		TRACY			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
M1992	CAD981367741	940224	NOT REPORTED	NOT REPORTED	



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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

**Mailing City:** TRACY

<b>VISTA Address*:</b>	<b>TRACY MOTORS AUTO RECYCLER</b> <b>101 SLOAN CT</b> <b>TRACY, CA 95376</b>	<b>VISTA ID#:</b>	428463
		<b>Distance/Direction:</b>	0.41 MI / SW
		<b>Plotted as:</b>	Point

Map  
10

**FINDS - Facility Index System / SRC# 6**      **EPA/Agency ID:** N/A

**Agency Address:** SAME AS ABOVE

**Indian Land:** NO      **Federal Facility:** NO

**Duns #:** NOT REPORTED

**SIC Code:** NOT REPORTED NOT REPORTED

**Program Name:** RCRIS

**Agency ID:** CAD982028227

**RCRA-SmGen - RCRA-Small Generator / SRC# 15**      **Agency ID:** CAD982028227

**Agency Address:** SAME AS ABOVE

**EPA Region:** 09

**Mailing Address:** 101 SLOAN CT

**City, State, Zip:** TRACY, CA

95376

**Significant Non-Complier Indicator:** HANDLER IS NOT A SIGNIFICANT NON-COMPLIER AT BEGINNING OF FISCAL YEAR.

**RCRA Facility Classification(s):** HANDLER IS NOT A MEMBER OF THE SUBJECT TO CORRECTIVE ACTION UNIVERSE.

**Notification Type:** NOTIFICATION DATA - CORE

**Contact:** ENVIRONMENTAL

MANAGER

**Title:** ENVIRO MANAGER

**Phone:** (209) 835-4105

**Contact Address:** 101 SLOAN CT

**Owner/Operator Indicator:** CURRENT OWNER

**Owner/Operator Type:** PRIVATE

**Owner/Operator Name:** WILLIFORD CURTIS

**Phone:** (415) 555-1212

**Address:** NOT REQUIRED

**Owner/Operator Indicator:** CURRENT OPERATOR

**Owner/Operator Type:** PRIVATE

**Owner/Operator Name:** NOT REQUIRED

**Phone:** (415) 555-1212

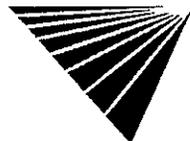
**Address:** NOT REQUIRED

**SIC Code:** 5521

**SIC Primary Indicator:** PRIMARY

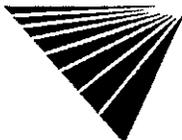
**SIC Code Source:** REPORTED BY FACILITY

**Generator Indicator:** SMALL QUANTITY GENERATOR



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Transporter Indicator:</b>	<i>UNVERIFIED</i>
<b>TSD Indicator:</b>	<i>NOT A TSD. UNVERIFIED</i>
<b>Burner/Blender Indicator:</b>	<i>UNVERIFIED</i>
<b>HWF Market to Burner Indicator:</b>	<i>NO GENERATOR-MARKETING-TO-BURNER ACTIVITY</i>
<b>HWF Other Marketer Indicator:</b>	<i>NO OTHER MARKETER ACTIVITY</i>
<b>HWF Burner Indicator:</b>	<i>NO BURNER ACTIVITY</i>
<b>Used Oil Fuel Burner Indicator:</b>	<i>NO MARKETING TO BURNER ACTIVITY</i>
<b>Used Oil Fuel Burner Indicator:</b>	<i>NO USED OIL FUEL BURNER ACTIVITY</i>
<b>Spec Used Oil Marketing Indicator:</b>	<i>NO SPEC. USED OIL FUEL MARKETING ACTIVITY</i>
<b>Utility Boiler Indicator:</b>	<i>NO ACTIVITY</i>
<b>Industrial Boiler Indicator:</b>	<i>NO ACTIVITY</i>
<b>Industrial Furnace Indicator:</b>	<i>NO ACTIVITY</i>
<b>Underground Injection Control Indicator:</b>	<i>NO ACTIVITY</i>
<b>Used Oil Recycler Indicator:</b>	<i>UNVERIFIED</i>
<b>Used Oil Transporter Indicator:</b>	<i>NO USED OIL TRANSPORT/TRANSFER FACILITY ACTIVITY</i>
<b>Used Oil Processor/Re-refiner:</b>	<i>NO PROCESS/RE-REFINE ACTIVITY</i>
<b>Air Transporter Indicator:</b>	<i>DOES NOT TRANSPORT BY AIR</i>
<b>Rail Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY RAIL</i>
<b>Road Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY ROAD</i>
<b>Water Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY WATER</i>
<b>Generator Status:</b>	<i>RCRA REGULATED</i>
<b>Information Source:</b>	<i>EPA INSPECTION</i>
<b>Date Submitted:</b>	<i>09/01/1996</i>
<b>Fields Not Reported by the Source Agency for this Site:</b>	<i>Other Transportation Indicator(1), Generator Status Description(1), Transporter Status Description(1), TSD Status Description(1), Burner/Blender Status Description(1), Transporter Status(1), TSD Status(1), Burner/Blender Status(1), Used Oil Recycler RCRA Regulatory Status(1)</i>



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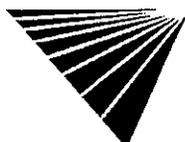
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A	
<b>Agency Address:</b>		TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 953760000		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
HAZNT	CAD982028227	931012	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		101 SLOAN CT		
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		953760000		
<b>Contact Name:</b>		WILLIFORD CURTIS		
<b>Contact Phone:</b>		2098354105		
<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A	
<b>Agency Address:</b>		TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 953760000		
<b>Phone:</b>		4155551212		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
RCRIS	CAD982028227	931020	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		101 SLOAN CT		
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95376		
<b>Contact Name:</b>		WILLIFORD CURTIS		
<b>Contact Phone:</b>		4155551212		
<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A	
<b>Agency Address:</b>		TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 953760000		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
FINDS	CAD982028227	940127	NOT REPORTED	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95376		

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374555121253001</b>	<b>VISTA ID#:</b>	8887633
CA		<b>Distance/Direction:</b>	0.44 MI / SW
		<b>Plotted as:</b>	Point
<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374555121253001	
<b>Use:</b>		IRRIGATION	
<b>Depth:</b>		200.0	
<b>Latitude:</b>		37.765277777777	
<b>Longitude:</b>		-121.425	
<b>Surface Elevation:</b>		16.00	
<b>Static Water Level:</b>		14.00	
<b>Date Well Drilled:</b>		01/01/1948	
<b>County FIPS:</b>		6077	

Map  
**1**



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

VISTA Address*:	<b>UNKNOWN 4200 N. HOLLY TRACY, CA 95376</b>	VISTA ID#:	8579359
		Distance/Direction:	0.46 MI / SW
		Plotted as:	Point

Map ID

**11**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	92-4761
Agency Address:	SAME AS ABOVE		
Spill Date Time:	JUNE 25, 1992 UNKNOWN		
Case Number:	92-4761		
Spill Location:	4200 N. HOLLY		
Source Agency:	E		
Discharger Org:	UNKNOWN		
Material Spilled:	WASTE OIL, 6.00 (BBL)		
Material Spilled:	DEGREASER SOLVENT, 1.00 (BBL)		
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

VISTA Address*:	<b>USGS WATER WELL ID #374543121244801 CA</b>	VISTA ID#:	8887610
		Distance/Direction:	0.46 MI / S
		Plotted as:	Point

Map ID

**12**

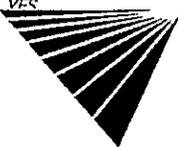
<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Well ID:	374543121244801		
Use:	DOMESTIC		
Depth:	126.0		
Latitude:	37.761944444444		
Longitude:	-121.4133333333		
Quadrangle Name:	UNION ISLAND		
Section Township Range:	SESWNWS15T02SR05EM		
Surface Elevation:	23.00		
Static Water Level:	21.00		
Date Well Drilled:	02/24/1975		
County FIPS:	6077		

VISTA Address*:	<b>YELLOW FREIGHT SYSTEM 1535 E. PESCADERO AVE TRACY, CA 95376</b>	VISTA ID#:	3996560
		Distance/Direction:	0.47 MI / S
		Plotted as:	Point

Map ID

**13**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	316677
Agency Address:	YELLOW FREIGHT SYSTEM 1535 E. PESCADERO AVE TRACY, CA		
Spill Date Time:	DECEMBER 9, 1995 11:55:00 PM		
Case Number:	316677		
Spill Location:	1535 E. PESCADERO AVE		
Discharger Org:	YELLOW FREIGHT SYSTEM		
Waterway Affected:	ATMOSPHERE		
Fields Not Reported:	Source Agency, Discharger Name, Discharger Phone, Material Spilled		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
YES	NO	NO	NO NO NO



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284001

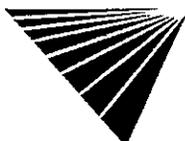
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	YELLOW FREIGHT 1539 EAST PESCADERO AVE. TRACY, CA 95376		
<b>Spill Date Time:</b>	JULY 25, 1996 01:13:00 PM		
<b>Spill Location:</b>	1539 EAST PESCADERO AVE.		
<b>Discharger Org:</b>	YELLOW FREIGHT		
<b>Material Spilled:</b>	SEALANT GAS, 0.00 (OTH)		
<b>Material Spilled:</b>	-VENTING FOR 30 MINUTES, 0.00 (UNK)		
<b>Fields Not Reported:</b>	Case Number, Source Agency, Discharger Name, Discharger Phone, Waterway Affected		
<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release: Facility Release:</b>
YES	NO	NO	NO
<b>STATE UST - State Underground Storage Tank / SRC# 45</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	YELLOW FREIGHT SYSTEM, INC. 1535 E PESCADERO TRACY, CA 95376		
<b>Underground Tanks:</b>	7		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	NOT REPORTED		
<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OIL(NOT SPECIFIED)	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	4000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS
<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	MISC. CHEMICAL	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	6000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS
<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OIL(NOT SPECIFIED)	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	6000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS
<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OIL(NOT SPECIFIED)	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	10000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS
<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OIL(NOT SPECIFIED)	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	1000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	MISC. CHEMICAL	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	10000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS

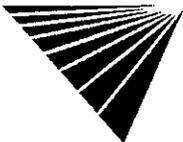
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM INC 1535 E. PESCADERO AVE TRACY, CA		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
HAZNT	CAL000037426	931013	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		PO BOX 7270 QC DEPT		
<b>Mailing City:</b>		TRACY		
<b>Contact Name:</b>		BEAMER GARY MANAGER		
<b>Contact Phone:</b>		2099481510		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM, INC. 1535 E. PESCADERO AVE TRACY, CA 2098331300		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
UTNKA	NOT REPORTED	931022	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		10990 ROE AVE		
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95376		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEMS 1535 E. PESCADERO AVE TRACY, CA 9133443409		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
SIRMI	5B39S003142	931025	4213	NOT REPORTED
<b>Mailing Address:</b>		10990 ROE AVENUE		
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95376		
<b>Contact Name:</b>		STEVE TRAVIS		
<b>Contact Phone:</b>		9133443409		

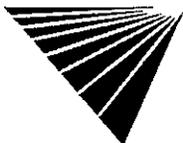
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM INC 1535 E. PESCADERO AVE TRACY, CA		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
M1991	CAL000037426	940224	NOT REPORTED	NOT REPORTED
<b>Mailing City:</b>		TRACY		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM INC 1535 E. PESCADERO AVE TRACY, CA		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
M1992	CAL000037426	940225	NOT REPORTED	NOT REPORTED



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Mailing City:</b>		TRACY		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM, INC., YELLOW FREI 1535 E. PESCADERO AVE TRACY, CA		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
ATANK	NOT REPORTED	931020	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		P.O. BOX 7270		
<b>Mailing City:</b>		TRACY		
<b>Contact Name:</b>		RICHARD SMITH		
<b>Contact Phone:</b>		2098331300		
<b>AST - Above Ground Storage Tank / SRC# 60</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM, INC. 1535 E. PESCADERO AVE TRACY, CA		
<b>Underground Tanks:</b>		NOT REPORTED		
<b>Aboveground Tanks:</b>		NOT REPORTED		
<b>Tanks Removed:</b>		NOT REPORTED		
<b>County UST - County Underground Storage Tank / SRC# 98</b>		<b>Agency ID:</b>		003854
<b>Agency Address:</b>		YELLOW FREIGHT 1535 E PESCADERO AVE TRACY, CA 95376 7		
<b>Underground Tanks:</b>		NOT REPORTED		
<b>Aboveground Tanks:</b>		NOT REPORTED		
<b>Tanks Removed:</b>		NOT REPORTED		
<b>Tank ID:</b>	001U	<b>Tank Status:</b>	ACTIVE/IN SERVICE	
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE	
<b>Tank Size (Units):</b>	10000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED	
<b>Tank ID:</b>	002U	<b>Tank Status:</b>	ACTIVE/IN SERVICE	
<b>Tank Contents:</b>	WASTE OIL	<b>Leak Monitoring:</b>	NOT AVAILABLE	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE	
<b>Tank Size (Units):</b>	1000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED	
<b>Tank ID:</b>	003U	<b>Tank Status:</b>	ACTIVE/IN SERVICE	
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE	
<b>Tank Size (Units):</b>	10000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED	
<b>Tank ID:</b>	004U	<b>Tank Status:</b>	ACTIVE/IN SERVICE	
<b>Tank Contents:</b>	WASTE OIL	<b>Leak Monitoring:</b>	NOT AVAILABLE	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE	
<b>Tank Size (Units):</b>	6000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED	
<b>Tank ID:</b>	005U	<b>Tank Status:</b>	ACTIVE/IN SERVICE	
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE	
<b>Tank Size (Units):</b>	6000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED	



\* VISTA address includes enhanced city and ZIP:

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	6000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED
<b>Tank ID:</b>	007U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	4000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED

<b>VISTA Address*:</b>	<b>SOLAR DRY SYSTEMS</b> 9801 SUGAR RD TRACY, CA 95376	<b>VISTA ID#:</b>	7719383
		<b>Distance/Direction:</b>	0.49 MI / SW
		<b>Plotted as:</b>	Point

Map ID  
**14**

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		SOLAR DRY SYSTEMS 9801 SUGAR RD TRACY, CA 953760000		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
HAZNT	CAL000001848	931012	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		9801 SUGAR RD		
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		953760000		
<b>Contact Name:</b>		STANLEY TOM MGR		
<b>Contact Phone:</b>		2098365052		

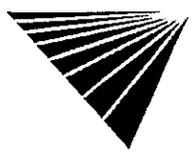
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<b>Agency Address:</b>		SOLAR DRY SYSTEMS 9801 SUGAR RD TRACY, CA 953760000		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
M1991	CAL000001848	940224	NOT REPORTED	NOT REPORTED

<b>VISTA Address*:</b>	<b>TRACY SEWAGE TREAT PLANT</b> 3900 HOLLY DRIVE TRACY, CA 95376	<b>VISTA ID#:</b>	1269563
		<b>Distance/Direction:</b>	0.49 MI / SW
		<b>Plotted as:</b>	Point

Map ID  
**15**

<b>FINDS - Facility Index System / SRC# 6</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		SAME AS ABOVE		
<b>Indian Land:</b>	NOT REPORTED	<b>Federal Facility:</b>	NO	
<b>Duns #:</b>	9825114B7			
<b>SIC Code:</b>	4952 TCU-SEWERAGE SYSTEMS			
<b>Program Name:</b>	PERMIT COMPLIANCE SYSTEM			
<b>Agency ID:</b>	CA0079154			

<b>STATE UST - State Underground Storage Tank / SRC# 45</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		CITY OF TRACY WASTEWATER TREAT 3900 HOLLY TRACY, CA 95376		
<b>Underground Tanks:</b>	1			
<b>Aboveground Tanks:</b>	NOT REPORTED			
<b>Tanks Removed:</b>	NOT REPORTED			



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Tank ID:</b>	<i>T001U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>
<b>Tank Contents:</b>	<i>PETROLEUM</i>	<b>Leak Monitoring:</b>	<i>MONITOR PRESENT</i>
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>UNKNOWN</i>
<b>Tank Size (Units):</b>	<i>7500 (GALLONS)</i>	<b>Tank Material:</b>	<i>BARE STEEL</i>

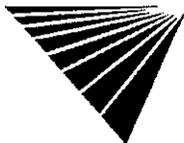
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<i>N/A</i>	
<b>Agency Address:</b>		<i>1X CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Phone:</b>		<i>2098361650</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAC000114933</i>	<i>931008</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>3900 HOLLY DR</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>953760000</i>		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<i>N/A</i>	
<b>Agency Address:</b>		<i>1X CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Phone:</b>		<i>2098364420</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAC000268193</i>	<i>931008</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>325 E. 10TH STREET</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>953760000</i>		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<i>N/A</i>	
<b>Agency Address:</b>		<i>CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAL000025100</i>	<i>931013</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>3900 HOLLY DR</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Contact Name:</b>		<i>SAGASER ROBERT</i>		
<b>Contact Phone:</b>		<i>2098361650</i>		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<i>N/A</i>	
<b>Agency Address:</b>		<i>CITY OF TRACY WASTE WATER TREA 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAL000040030</i>	<i>931013</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>3900 HOLLY DR</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Contact Name:</b>		<i>AMEZQUITA RUBEN</i>		
<b>Contact Phone:</b>		<i>2098361650</i>		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<i>N/A</i>	
<b>Agency Address:</b>		<i>CITY OF TRACY WASTEWATER TREAT 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Phone:</b>		<i>2098361650</i>		



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284001

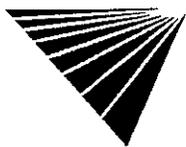
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>UTNKA</i>	<i>NOT REPORTED</i>	<i>931022</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>560 S TRACY BLVD</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	<i>N/A</i>
<b>Agency Address:</b>		<i>CITY OF TRACY - WWTP 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Phone:</b>		<i>2098361650</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>STRMI</i>	<i>5B39S001284</i>	<i>931025</i>	<i>4952</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>3900 HOLLY DR</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>Contact Name:</b>		<i>CHARLES PRINGLE</i>		
<b>Contact Phone:</b>		<i>2098361650</i>		
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	<i>N/A</i>
<b>Agency Address:</b>		<i>TRACY SEWAGE TRT. PLANT 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>SWRCB</i>	<i>5B390108001</i>	<i>931027</i>	<i>4952</i>	<i>NOT REPORTED</i>
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>Contact Name:</b>		<i>FRANK MOTZKUS</i>		
<b>Contact Phone:</b>		<i>2098361650</i>		
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	<i>N/A</i>
<b>Agency Address:</b>		<i>TRACY CITY OF WWTP 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>FINDS</i>	<i>CAD982511487</i>	<i>940127</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	<i>N/A</i>
<b>Agency Address:</b>		<i>1X CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>M1990</i>	<i>CAC000268193</i>	<i>940218</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing City:</b>		<i>TRACY</i>		
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	<i>N/A</i>
<b>Agency Address:</b>		<i>CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>M1990</i>	<i>CAL000025100</i>	<i>940218</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284001

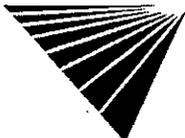
Date of Report: January 17, 2001

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Mailing City:</b>	TRACY		
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 164</b>	<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	TRACY WASTE WATER 3900 HOLLY DR TRACY, CA 95376		
<b>Site Name:</b>	TRACY WASTE WATER		
<b>Street Number:</b>	3900		
<b>Street Name:</b>	HOLLY DR		
<b>City:</b>	TRACY		
<b>Zip:</b>	95376		
<b>Cross Street:</b>	I-205		
<b>Region:</b>	05		
<b>County:</b>	39		
<b>Case Number:</b>	391016		
<b>Case Type:</b>	UNKNOWN		
<b>Lead Agency:</b>	LOCAL AGENCY		
<b>Local Agency:</b>	39000		
<b>Status:</b>	LEAK BEING CONFIRMED		
<b>Substance:</b>	DIESEL		
<b>Abatement Method:</b>	AGENCY CODE0		
<b>Enforcement Type:</b>	NONE TAKEN		
<b>Funding:</b>	AGENCY CODE0		
<b>How LUST was Discovered:</b>	TANK CLOSURE		
<b>How LUST was Stopped:</b>	CLOSE TANK		
<b>MTBE Tested:</b>	SITE NOT TESTED FOR MTBE		
<b>Program</b>	LOCAL IMPLEMENTING AGENCY UST		
<b>Priority:</b>	2		
<b>Responsible Party:</b>	TRACY, CITY OF		
<b>Staff:</b>	WMH		
<b>Suspended:</b>	N		
<b>Latitude:</b>	38.542587		
<b>Longitude:</b>	-121.389884		
<b>Leak Cause:</b>	UNKNOWN		
<b>Leak Source:</b>	UNKNOWN		
<b>Date Leak Confirmed</b>	1/20/1998		
<b>Date Leak was Discovered:</b>	1/20/1998		



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Enter Date:</b>	8/4/1998
<b>Report Date:</b>	6/29/1998
<b>Fields Not Reported by the Source Agency for this Site:</b>	County Code(1), Cleanup Fund ID(1), Interim Remedial Action(1), Local Case Number(1), Soil Qualifier(1), MTBE in Soil(1), Groundwater Qualifier(1), MTBE in Groundwater(1), Operator(1), Quantity of Primary Substance Leaked (G)(1), Basin(1), Beneficial Use(1), Summary(1), Date Prelim Site Assessment Workplan Sub(1), Date Preliminary Site Assessment Began(1), Date Pollution Characterization Began(1)

<b>VISTA Address*:</b>	<b>TRACY WASTE WATER</b> <b>3900 HOLLY DR</b> <b>TRACY, CA 95376</b>	<b>VISTA ID#:</b>	64860635
		<b>Distance/Direction:</b>	0.49 MI / SW
		<b>Plotted as:</b>	Point

Map ID

**15**

<b>Regional LUST - Regional Leaking Underground Storage Tank / SRC# 145</b>	<b>Agency ID:</b>	3270
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<b>Agency Address:</b>	TRACY WASTE WATER 3900 HOLLY DR TRACY, CA 0
<b>Name:</b>	TRACY WASTE WATER
<b>Address:</b>	3900 HOLLY DR
<b>City:</b>	TRACY
<b>State:</b>	CA
<b>County:</b>	SAN JOAQUIN
<b>Staff:</b>	WMH
<b>Substance:</b>	DIESEL
<b>Case Type:</b>	U
<b>Case Type Description:</b>	UNDEFINED
<b>Remediation Status:</b>	I
<b>Lead Agency:</b>	LIA
<b>Remediation Status Description:</b>	LEAK BEING CONFIRMED/LEAK REPORT SUBMITT
<b>Fields Not Reported by the Source Agency for this Site:</b>	MTBE Code(1)

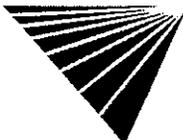
<b>VISTA Address*:</b>	<b>TRACY, CITY OF</b> <b>3900 HOLLY DR</b> <b>TRACY, CA 95376</b>	<b>VISTA ID#:</b>	4986496
		<b>Distance/Direction:</b>	0.49 MI / SW
		<b>Plotted as:</b>	Point

Map ID

**15**

<b>CALFID / SRC# 54</b>	<b>EPA/Agency ID:</b>	N/A
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<b>Agency Address:</b>	TRACY, CITY OF 3900 HOLLY DR TRACY, CA 953760000			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
PCS	CAD982511487	931028	4952	NOT REPORTED
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	95376			
<b>Contact Name:</b>	DARRELL D. SCOTT			
<b>Contact Phone:</b>	2098361650			



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

VISTA Address*:	<b>SIERRA CHEMICAL 3900 HOLLY DRIVE TRACY, CA 95376</b>	VISTA ID#:	12711073
		Distance/Direction:	0.49 MI / SW
		Plotted as:	Point

Map I

**15**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>	EPA/Agency ID:	N/A
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<b>Agency Address:</b>	<i>SAME AS ABOVE</i>
<b>Spill Date Time:</b>	<i>JANUARY 12, 1999 02:00:00 PM</i>
<b>Spill Location:</b>	<i>3900 HOLLY DRIVE</i>
<b>Discharger Name:</b>	<i>SIERRA CHEMICAL</i>
<b>Discharger Org:</b>	<i>SIERRA CHEMICAL</i>
<b>Material Spilled:</b>	<i>sulfur dioxide, 0.00 (UNK)</i>
<b>Fields Not Reported:</b>	<i>Case Number, Source Agency, Discharger Phone, Waterway Affected</i>

<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>	<b>Facility Release:</b>	<b>Other Release:</b>
YES	NO	NO	NO	NO	NO

VISTA Address*:	<b>3900 HOLLY DR TRACY, CA 95376</b>	VISTA ID#:	7776554
		Distance/Direction:	0.49 MI / SW
		Plotted as:	Point

Map I

**15**

<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A
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<b>Agency Address:</b>	<i>3900 HOLLY DR TRACY, CA 953760000</i>
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<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>WDSE</i>	<i>58390108001</i>	<i>931027</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>

VISTA Address*:	<b>A.B. AUTOMOTIVE 3941 HOLLY DR TRACY, CA 95376</b>	VISTA ID#:	7777563
		Distance/Direction:	0.50 MI / SW
		Plotted as:	Point

Map II

**15**

<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A
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<b>Agency Address:</b>	<i>A.B. AUTOMOTIVE 3941 HOLLY DR TRACY, CA</i>
------------------------	--

<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNI</i>	<i>CAL000079202</i>	<i>931013</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>

<b>Mailing Address:</b>	<i>3941 UNIT B HOLLY DR</i>
<b>Mailing City:</b>	<i>TRACY</i>
<b>Mailing Zip:</b>	<i>953760000</i>
<b>Contact Name:</b>	<i>BALATAYO, ABRAHAM</i>
<b>Contact Phone:</b>	<i>2098358536</i>

VISTA Address*:	<b>TRACY SPEED MACHINE 3941 HOLLY DR TRACY, CA 95376</b>	VISTA ID#:	7777564
		Distance/Direction:	0.50 MI / SW
		Plotted as:	Point

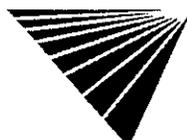
Map II

**15**

<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A
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<b>Agency Address:</b>	<i>TRACY SPEED MACHINE 3941 HOLLY DR TRACY, CA</i>
------------------------	--

<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNI</i>	<i>CAL000025054</i>	<i>931013</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284001

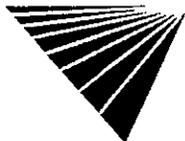
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PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.

Mailing Address:	3941 HOLLY DR UNIT L
Mailing City:	TRACY
Contact Name:	MORRIS JOHN-OWNER
Contact Phone:	2098357909



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284001

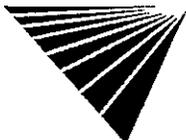
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**UNMAPPED SITES**

Records Found, No Details Displayed



\* VISTA address includes enhanced city and ZIP.

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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## DESCRIPTION OF DATABASES SEARCHED

### A) DATABASES SEARCHED TO 1/2 MILE

**NPL**  
**SRC#: 19** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for National Priorities List was August, 2000.**

The NPL Report is the US EPA's registry of the nation's worst uncontrolled or abandoned hazardous waste sites. NPL sites are targeted for possible long-term remedial action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

**SPL**  
**SRC#: 113** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for CalSites Database was October, 2000.**

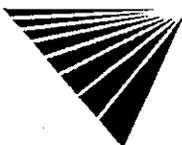
This database is provided by the Cal. Environmental Protection Agency, Dept. of Toxic Substances Control. The agency may be contacted at: 916-323-3400.

**CERCLIS**  
**SRC#: 17** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Comprehensive Environmental Response, Compensation and Liability Information Sys was August, 2000.**

The CERCLIS database is a comprehensive listing of known or suspected uncontrolled or abandoned hazardous waste sites. These sites have either been investigated, or are currently under investigation by the U.S. EPA for the release, or threatened release of hazardous substances. Once a site is placed in CERCLIS, it may be subjected to several levels of review and evaluation, and ultimately placed on the National Priorities List (NPL).

**NFRAP**  
**SRC#: 18** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for No Further Remedial Action Planned was August, 2000.**

The No Further Remedial Action Planned Report (NFRAP), also known as the CERCLIS Archive, contains information pertaining to sites which have been removed from the U.S. EPA's CERCLIS database. NFRAP sites may be sites where, following an initial investigation, either no contamination was found, contamination was removed quickly without need for the site to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration.



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

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SCL  
SRC#: 112

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for CalSites Database was October, 2000.**

This database is provided by the Department of Toxic Substances Control. Two-thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

CORRACTS  
SRC#: 14

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Corrective Action Sites was March, 2000.**

The CORRACTS database contains information concerning RCRA facilities that have conducted, or are currently conducting a corrective action. A Corrective Action Order is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may also be imposed as a requirement of receiving and maintaining a TSDF permit.

ERNS  
SRC#: 8

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Emergency Response Notification System was December, 2000.**

ERNS is a national computer database system that is used to store information on the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party.

RCRIS-TSD  
SRC#: 12

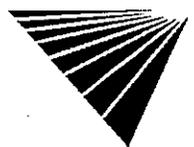
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Treatment, Storage and Disposal Facilities was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

RCRIS-TSDC  
SRC#: 556

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS TSDs Subject to Corrective Action was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDCs are treatment, storage and/or disposal facilities that are subject to corrective action under RCRA.



**RCRA-LQG**  
**SRC#: 16**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Large Quantity Generators was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1.kg./month of acutely hazardous waste).

**RCRIS-SQG**  
**SRC#: 15**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Small Quantity Generators was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small Quantity Generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

**RCRIS-VIOL**  
**SRC#: 11**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Facilities with Violations was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. The RCRIS Other report contains information concerning facilities that are "unclassified" within the RCRIS database (not classified as a Large Quantity Generator, Transporter, etc.).

**SWLF**  
**SRC#: 23**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for USGS Solid Waste Landfills was December, 1991.**

This database is provided by the United States Geological Survey. The agency may be contacted at: 703-648-5613.

**SWLF**  
**SRC#: 163**

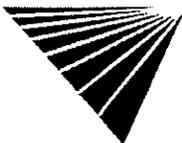
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Solid Waste Inventory System was October, 2000.**

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

**SWLF-CO**  
**SRC#: 70**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for City of Los Angeles Landfills Transfer Stations was April, 1999.**

This database is provided by the City of Los Angeles, Environmental Affairs Department. The agency may be contacted at: 213-580-1070.



**SPILLS**  
**SRC#: 147** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Region 5 SLIC/DOD/DOE Site List was September, 2000.**

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3000.

**LUST**  
**SRC#: 164** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Leaking Underground Storage Tank Information System was October, 2000.**

This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-341-5740.

**LUST-REG**  
**SRC#: 108** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Region 6 Leaking Underground Storage Tanks was February, 2000.**

This database is provided by the Lahontan Region Six South Lake Tahoe. The agency may be contacted at: 530-542-5400.

**LUST-REG**  
**SRC#: 145** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Region 5 Leaking Underground Storage Tanks was April, 2000.**

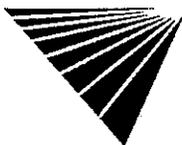
This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3125.

**UST**  
**SRC#: 45** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Underground Storage Tanks was January, 1994.**

This historical database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. Please refer to the local level UST list for more current information. Be advised that some states do not require registration of heating oil tanks, especially those used for residential purposes.

**UST-CO-SJO**  
**SRC#: 98** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for San Joaquin County Underground Storage Tanks was July, 1999.**

This database is provided by the County of San Joaquin Environmental Health Division. The agency may be contacted at: 209-468-0340. Be advised: Many states do not require registration of heating oil tanks, especially those used for residential purposes.



AST  
SRC#: 60

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Aboveground Storage Tanks was December, 1999.**

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

TRIS  
SRC#: 2

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Toxic Release Inventory System was January, 1998.**

All facilities that manufacture, process, or import toxic chemicals in quantities in excess of 25,000 pounds per year are required to register with the EPA under Section 313 of the Superfund Amendments and Reauthorization Act (SARA Title III) of 1986. Data contained in the TRIS system covers approximately 20,000 sites and 75,000 chemical releases.

CORTESE  
SRC#: 53

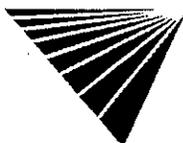
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Cortese List - Hazardous Waste Substance Site List was April, 1998.**

This database is provided by the Office of Environmental Protection, Office of Hazardous Materials. The agency may be contacted at: 916-445-6532. The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California under Government Code Section 65962.5. This database (CORTESE) is based on input from the following: (1)CALSITES-Department of Toxic Substances Control, Abandoned Sites Program Information Systems; (2)SARA Title III Section III Toxic Chemicals Release Inventory for 1987, 1988, 1989, and 1990; (3)FINDS; (4)HWIS-Department of Toxic Substances Control, Hazardous Waste Information System. Vista has not included one time generator facilities from Cortese in our database.; (5)SWRCB-State Water Resources Control Board; (6)SWIS-Integrated Waste Management Control Board (solid waste facilities); (7)AGT25-Air Resources Board, dischargers of greater than 25 tons of criteria pollutants to the air; (8)A1025-Air Resources Board, dischargers of greater than 10 and less than 25 tons of criteria pollutants to the air; (9)LTANK-SWRCB Leaking Underground Storage Tanks; (10)UTANK-SWRCB Underground tanks reported to the SWEEPS systems; (11)IUR-Inventory Update Rule (Chemical Manufacturers); (12)WB-LF- Waste Board - Leaking Facility, site has known migration; (13)WDSE-Waste Discharge System - Enforcement Action; (14)DTSCD-Department of Toxic Substance Control Docket.

BORDER-ZON  
SRC#: 46

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Deed Restriction Properties Report was April, 1994.**

The Deeds Restrictions list, also known as the Border Zone Property List, contains information concerning voluntary deed restriction. These agreements are made with owners of property who propose building residences, schools, hospitals, or day care centers on property that is on or within 2,000 feet of potentially hazardous waste site.



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

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**TOXICPITS**  
**SRC#: 49**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Toxic Pits was February, 1995.**

This database is provided by the Water Quality Control Board, Division of Loans Grants.  
The agency may be contacted at: 916-227-4396.

**USGS-WELLS**  
**SRC#: 3**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for USGS Water Wells was March, 1998.**

The Ground Water Site Inventory (GWSI) database was provided by the United States Geological Survey (USGS). The database contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used or documented during research.

**FINDS**  
**SRC#: 6**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Facility Index System was February, 1999.**

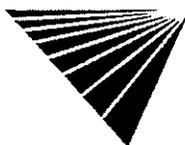
The FINDS report is an inventory of all facilities that are regulated or tracked by the U.S. Environmental Protection Agency. These facilities are assigned an identification number that serves as a cross-reference for other databases in the EPA's program system. Each FINDS record indicates the EPA Program Office that is responsible for the tracking of the facility.

**CALFID**  
**SRC#: 54**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Facility Inventory Data System was April, 1998.**

This database is provided by the Environmental Protection Agency, Department of Toxic Substances Control. The agency may be contacted at: 916-323-3400.

End of Report



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

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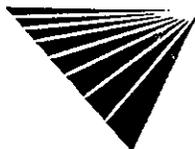
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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: SITE 1 SITE 1 (MAC ARTHUR DRIVE) MAC ARTHUR DRIVE TRACY, CA Latitude/Longitude: ( 37.769049, 121.413764 )	GAYLE LYTLE CH2M HILL 1111 BROADWAY SUITE 1200 OAKLAND, CA 94607

Site Distribution Summary			within 1/2 mile
Agency / Database - Type of Records			
<b>A) Databases searched to 1/2 mile:</b>			
US EPA	NPL	National Priority List	0
US EPA	CORRACTS	RCRA Corrective Actions (w/o TSD)	0
US EPA	TSD CORRACTS	RCRA Corrective Actions and associated TSD	0
STATE	SPL	State equivalent priority list	0
US EPA	RCRA-TSD	RCRA permitted treatment, storage, disposal facilities	0
STATE	SCL	State equivalent CERCLIS list	0
US EPA	CERCLIS/ NFRAP	Sites under review by US EPA	0
STATE/ REG/CO	LUST	Leaking Underground Storage Tanks	4
STATE/ REG/CO	SWLF	Solid waste landfills, incinerators, or transfer stations	0
STATE	DEED RSTR/ BORDER ZONE	Sites with deed restrictions	0
STATE	CORTESE	State index of properties with hazardous waste	1
STATE	TOXIC PITS	Toxic Pits cleanup facilities	0
US EPA	FINDS	Facility Index System	5
USGS/STATE	WATER WELLS	Federal and State Drinking Water Sources	5
US EPA	TRIS	Toxic Release Inventory database	2
STATE	UST	Registered underground storage tanks	4
STATE/ CO	AST	Registered aboveground storage tanks	3
STATE	CALFID	California Facility Inventory	13
US EPA	LG GEN	RCRA registered large generators of hazardous waste	0
US EPA	SM GEN	RCRA registered small generators of hazardous waste	2
US EPA	RCRA Viol	RCRA violations/enforcement actions	0
US EPA	ERNS	Emergency Response Notification System of spills	5
STATE	SPILLS	State spills list	1



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

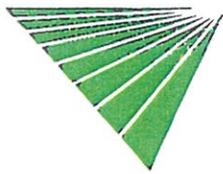
Report ID: 381284002

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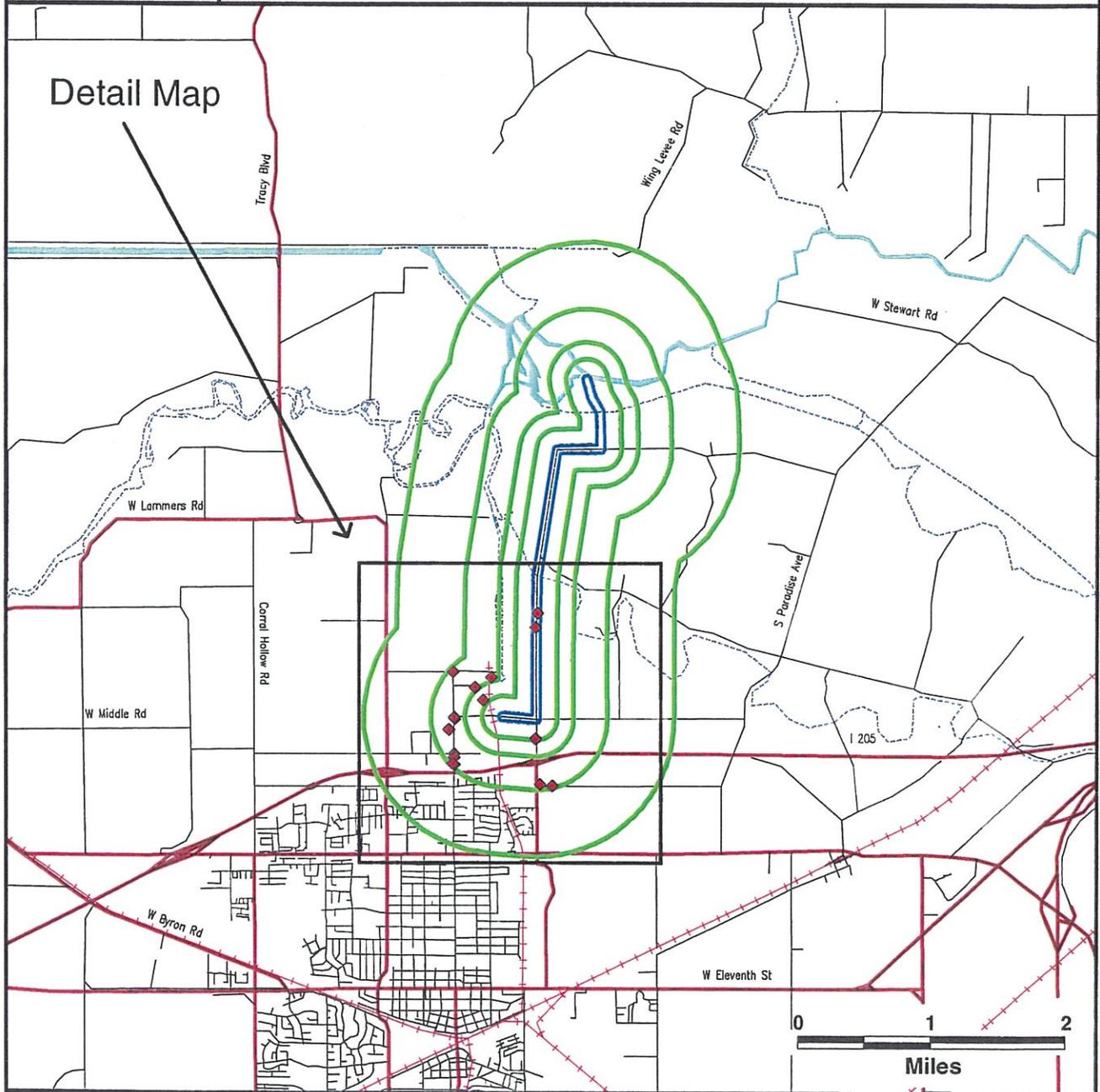




# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## Overview Map

Detail Map



Subject Centerline



Risk Sites



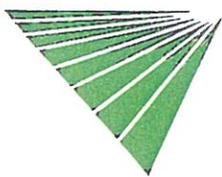
Risk Sites Plotted as Polygons



Highways and Major Roads

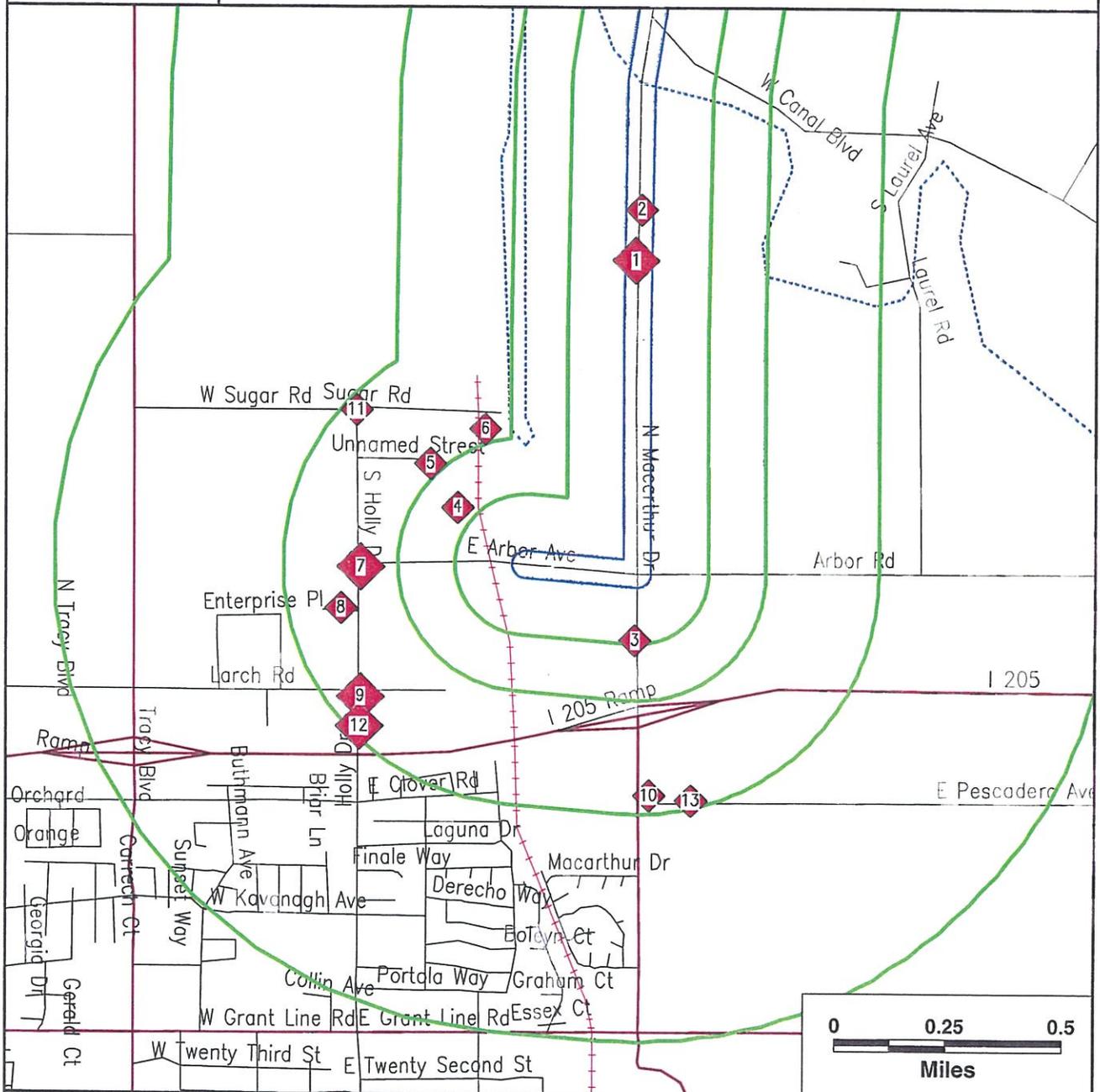
Rivers or Water Bodies

Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.



# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## Detail Map



<b>Subject Centerline</b> 	<b>Category:</b> A B C D	<b>Risk Sites Plotted as Polygons</b> 
<b>Search Area</b> 	<b>Single Sites</b> <b>Multiple Sites</b>	
Highways and Major Roads Roads Railroads Rivers or Water Bodies Utilities	Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.	

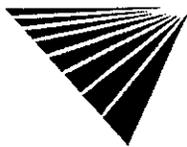
For More Information Call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403  
Report ID: 381284002

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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/2 mile)	VISTA ID	A																						
			NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS
1	LEPRINO FOODS CO. 2401 MACARTHUR DR. TRACY, CA 95376	242986												X		X			X					X	
1	LEPRINO FOODS 2401 MAC ARTHUR ROAD TRACY, CA 95376	64506275																X							
2	ORCHARD SUPPLY HARDWARE 2650 N MAC ARTHUR TRACY, CA 95376	4062498															X		X						
3	DEPLY ORTHOTECH 1905 N MACARTHUR DR TRACY, CA 95376	4062498											X						X		X				
4	USGS WATER WELL ID #374616121251601 , CA	8887680													X										
5	USGS WATER WELL ID #374621121252001 , CA	8887694													X										
6	USGS WATER WELL ID #374625121251201 , CA	8887699													X										
7	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 0	64862083							X																X
7	HOLLY SUGAR CORP. 20500 HOLLY DR. TRACY, CA	64505946																X							
7	HOLLY SUGR 20500 HOLLY DRIVE TRACY, CA 95376	198390							X		X						X		X					X	
7	HOLLY SUGAR CORP. TRACT FACTOR 20500 TRACY, CA 95376	64862083												X		X			X						



X = search criteria; \* = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

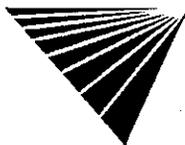
Report ID: 381284002

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MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/2 mile)	VISTA ID	A																						
			NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	IUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS
8	TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 95376	428463												X					X		X				
9	USGS WATER WELL ID #374555121253001 , CA	8887633													X										
9	UNKNOWN 4200 N. HOLLY TRACY, CA 95376	8579359																					X		
10	USGS WATER WELL ID #374543121244801 , CA	8887610													X										
11	SOLAR DRY SYSTEMS 9801 SUGAR RD TRACY, CA 95376	7719383																	X						
12	TRACY SEWAGE TRT PLAN 3900 HOLLY DRIVE TRACY, CA 95376	269563							X				X			X		X							
12	TRACY WASTE WATER 3900 HOLLY DR TRACY, CA 95376	64860635							X																
12	TRACY, CITY OF 3900 HOLLY DR TRACY, CA 95376	4986496																	X						
12	SIERRA CHEMICAL 3900 HOLLY DRIVE TRACY, CA 95376	12711073																					X		
12	3900 HOLLY DR TRACY, CA 95376	7776554																	X						
12	A.B. AUTOMOTIVE 3941 HOLLY DR TRACY, CA 95376	7777563																	X						
12	TRACY SPEED MACHINE 3941 HOLLY DR TRACY, CA 95376	7777564																	X						
13	YELLOW FREIGHT SYSTEM 1535 E. PESCADERO AVE TRACY, CA 95376	3996560															X	X	X				X		



X = search criteria; \* = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

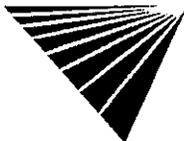
Report ID: 381284002

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UNMAPPED SITES	A																							
	NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	IUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS	
M M BUILDERS SUPPLY 8111 BUS LOOP 205 W TRACY, CA 0								X																
STRONG PROPERTY 5157 BUS LOOP 205 W TRACY, CA 0								X																



X = search criteria; • = tag-along (beyond search criteria).

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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

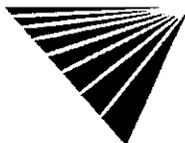
## DETAILS

### PROPERTY AND THE ADJACENT AREA (within 1/2 mile)

VISTA Address*:	LEPRINO FOODS CO. 2401 MACARTHUR DR. TRACY, CA 95376	VISTA ID#:	242986
		Distance/Direction:	0.00 MI / NA
		Plotted as:	Point
<b>TRIS - Toxic Release Inventory System / SRC# 2</b>		EPA/Agency ID:	N/A
Agency Address: <i>SAME AS ABOVE</i>			
<b>Chemical Abstract Service Registry:</b>		<b>Quantity Released:</b>	
AMMONIA		10800.00 (POUNDS)	
PHOSPHORIC ACID		5.00 (POUNDS)	
NITRIC ACID		5.00 (POUNDS)	
<b>FINDS - Facility Index System / SRC# 6</b>		EPA/Agency ID:	N/A
Agency Address: <i>SAME AS ABOVE</i>			
Indian Land:	<i>NOT REPORTED</i>	Federal Facility:	<i>NO</i>
Duns #:	<i>007076664</i>		
SIC Code:	<i>2022 MFG-CHEESE NATURAL PROCESSED</i>		
SIC Code:	<i>2023 2023</i>		
Program Name:	<i>TRIS</i>		
Program Name:	<i>AIR FACILITY SYSTEM</i>		
Agency ID:	<i>95376LPRNF2401M</i>		
Agency ID:	<i>CA0842428</i>		
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	135871
Agency Address: <i>LEPRINO FOODS 2401 MACARTHUR DRIVE TRACY, CA 95376</i>			
Spill Date Time: <i>SEPTEMBER 9, 1992 08:45:00 AM</i>			
Case Number: <i>135871</i>			
Spill Location: <i>2401 MACARTHUR DRIVE</i>			
Source Agency: <i>N</i>			
Discharger Name: <i>GREENGRASS, ROY</i>			
Discharger Org: <i>LEPRINO FOODS</i>			
Material Spilled: <i>EVAP-O-SHINE, 200.00 (GAL)</i>			
Waterway Affected: <i>GROUND</i>			
Fields Not Reported: <i>Discharger Phone</i>			
<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>
<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>
			<b>Facility Release:</b>
			<i>NO</i>
			<b>Other Release:</b>
			<i>NO</i>

Map ID

1



\* VISTA address includes enhanced city and ZIP.

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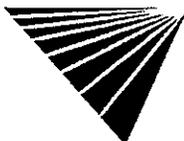
**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-0012
Agency Address:	LA PRINO FOOD 2401 MAC ARTHUR TRACY, CA 95376		
Spill Date Time:	OCTOBER 2, 1990 04:30:00 AM		
Case Number:	91-0012		
Spill Location:	2401 MAC ARTHUR		
Source Agency:	E		
Discharger Org:	LA PRINO FOOD		
Material Spilled:	LIQUID SODIUM HYDROXIDE, 250.00 (GAL)		
Waterway Affected:	NONE		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	90-8743
Agency Address:	LE PRIMO FOODS 2401 MAC ARTHUR AVENUE TRACY, CA 95376		
Spill Date Time:	JULY 17, 1990 07:12:00 AM		
Case Number:	90-8743		
Spill Location:	2401 MAC ARTHUR AVENUE		
Source Agency:	E		
Discharger Org:	LE PRIMO FOODS		
Material Spilled:	ACID AND CAUSTIC MATERIALS*, 100.00 (GAL)		
Waterway Affected:	FACILITY'S DRAINS ONLY		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

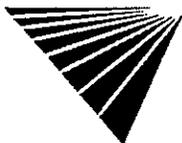
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	92-5876A
Agency Address:	LEPRINO FOODS 2401 MACARTHUR DR TRACY, CA 95376		
Spill Date Time:	SEPTEMBER 9, 1992 08:45:00 AM		
Case Number:	92-5876A		
Spill Location:	2401 MACARTHUR DR		
Source Agency:	E		
Discharger Org:	LEPRINO FOODS		
Material Spilled:	EVAP-O-SHINE 200.00 (GAL)		
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:	1X LE PRINO FOODS 2401 MACARTHUR RD TRACY, CA 4153731844		
Phone:	4153731844		
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
HAZNT	CAC000177389	931008	NOT REPORTED NOT REPORTED



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Mailing Address:</b> 2401 MACARTHUR ROAD				
<b>Mailing City:</b> TRACY				
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b> LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
HAZNT	CAL000045338	931013	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b> 2401 MACARTHUR				
<b>Mailing City:</b> TRACY				
<b>Contact Name:</b> GREENGRASS ROY PLAN				
<b>Contact Phone:</b> 2098358340				
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b> LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1987	391662	931014	2022	NOT REPORTED
<b>Mailing City:</b> TRACY				
<b>Mailing Zip:</b> 95376				
<b>Contact Name:</b> JOHN EWING				
<b>Contact Phone:</b> 3034802600				
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b> LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1988	391662	931014	2022	NOT REPORTED
<b>Mailing City:</b> TRACY				
<b>Mailing Zip:</b> 95376				
<b>Contact Name:</b> JOHN EWING				
<b>Contact Phone:</b> 3034802600				
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b> LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1989	391662	931014	2022	NOT REPORTED
<b>Mailing City:</b> TRACY				
<b>Mailing Zip:</b> 95376				
<b>Contact Name:</b> JOHN EWING				
<b>Contact Phone:</b> 3034802600				
<b>CALFID / SRC# 54</b>			<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b> LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1990	391662	931014	2022	NOT REPORTED



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284002

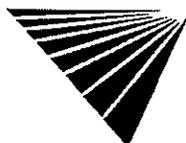
Date of Report: January 18, 2001

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

Mailing City: TRACY				
Mailing Zip: 95376				
Contact Name: JOHN EWING				
Contact Phone: 3034802600				
CALFID / SRC# 54			EPA/Agency ID:	N/A
Agency Address: LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
S1991	391662	931014	2022	NOT REPORTED
Mailing City: TRACY				
Mailing Zip: 95376				
Contact Name: JOHN EWING				
Contact Phone: 3034802600				
CALFID / SRC# 54			EPA/Agency ID:	N/A
Agency Address: LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
S1992	391662	931014	2022	NOT REPORTED
Mailing City: TRACY				
Mailing Zip: 95376				
Contact Name: JOHN EWING				
Contact Phone: 3034802600				
CALFID / SRC# 54			EPA/Agency ID:	N/A
Agency Address: LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
S1992	391662	931014	2022	NOT REPORTED
Mailing City: TRACY				
Mailing Zip: 95376				
Contact Name: JOHN EWING				
Contact Phone: 3034802600				
CALFID / SRC# 54			EPA/Agency ID:	N/A
Agency Address: LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
SWRCB	58392074001	931027	0723	NOT REPORTED
Mailing City: TRACY				
Mailing Zip: 95376				
Contact Name: RICK EARP				
Contact Phone: 2098358340				
CALFID / SRC# 54			EPA/Agency ID:	N/A
Agency Address: LEPRINO FOODS 2401 MACARTHUR RD TRACY, CA				
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
FINDS	CAD983576257	940127	NOT REPORTED	NOT REPORTED
Mailing City: TRACY				
Mailing Zip: 95376				
CALFID / SRC# 54			EPA/Agency ID:	N/A
Agency Address: 1X LE PRINO FOODS 2401 MACARTHUR RD TRACY, CA				
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
M1992	CAC000177389	940224	NOT REPORTED	NOT REPORTED



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

Mailing City: *TRACY*

CALFID / SRC# 54 EPA/Agency ID: N/A

Agency Address: *LEPRINO FOODS  
2401 MAC ARTHUR  
TRACY, CA 953761057*

Regulated By: ID #: Record Creation SIC Code: Cortese Flag:  
Date:

*A1025 NOT REPORTED 931019 2023 NOT REPORTED*

Mailing Address: *P.O. BOX 1057*

Mailing City: *TRACY*

Mailing Zip: *953761057*

Contact Name: *ROY GREENGRASS*

Contact Phone: *8358340*

CALFID / SRC# 54 EPA/Agency ID: N/A

Agency Address: *LEPRINO FOODS COMPANY, LEPRINO FOODS  
2401 MACARTHUR RD  
TRACY, CA 95376*

Regulated By: ID #: Record Creation SIC Code: Cortese Flag:  
Date:

*ATANK NOT REPORTED 931020 NOT REPORTED NOT REPORTED*

Mailing Address: *P.O. BOX 1057*

Mailing City: *TRACY*

Mailing Zip: *95376*

Contact Name: *ROY GREENGRASS*

Contact Phone: *2098358340*

VISTA Address*:	<b>LEPRINO FOODS 2401 MAC ARTHUR ROAD TRACY, CA 95376</b>	VISTA ID#:	64506275
		Distance/Direction:	0.00 MI / NA
		Plotted as:	Point

Map II  
**1**

AST - Above Ground Storage Tank / SRC# 60 EPA/Agency ID: N/A

Agency Address: *SAME AS ABOVE*

Underground Tanks: *NOT REPORTED*

Aboveground Tanks: *NOT REPORTED*

Tanks Removed: *NOT REPORTED*

VISTA Address*:	<b>ORCHARD SUPPLY HARDWARE 2650 N MAC ARTHUR TRACY, CA 95376</b>	VISTA ID#:	4032876
		Distance/Direction:	0.00 MI / NA
		Plotted as:	Point

Map II  
**2**

STATE UST - State Underground Storage Tank / SRC# 45 EPA/Agency ID: N/A

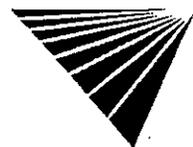
Agency Address: *SAME AS ABOVE*

Underground Tanks: *1*

Aboveground Tanks: *NOT REPORTED*

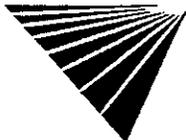
Tanks Removed: *NOT REPORTED*

Tank ID:	<i>001U</i>	Tank Status:	<i>ACTIVE/IN SERVICE</i>
Tank Contents:	<i>OIL(NOT SPECIFIED)</i>	Leak Monitoring:	<i>MONITOR PRESENT</i>
Tank Age:	<i>NOT REPORTED</i>	Tank Piping:	<i>FIBERGLASS</i>
Tank Size (Units):	<i>750 (GALLONS)</i>	Tank Material:	<i>FIBERGLASS</i>



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		ORCHARD SUPPLY HARDWARE 2650 N. MAC ARTHUR DR TRACY, CA 953760000			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
HAZNI	CAL000068972	931013	NOT REPORTED	NOT REPORTED	
<b>Mailing Address:</b>		PO BOX 49027			
<b>Mailing City:</b>		TRACY			
<b>Mailing Zip:</b>		953760000			
<b>Contact Name:</b>		HUER, JERRY			
<b>Contact Phone:</b>		2098333114			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		ORCHARD SUPPLY HARDWARE 2650 N. MAC ARTHUR DR TRACY, CA 953760000			
<b>Phone:</b>		2098333100			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
UTNKA	NOT REPORTED	931022	NOT REPORTED	NOT REPORTED	
<b>Mailing Address:</b>		6450 VIA DEL ORO			
<b>Mailing City:</b>		TRACY			
<b>Mailing Zip:</b>		95376			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		ORCHARD SUPPLY HARDWARE 2650 N. MAC ARTHUR DR TRACY, CA 953760000			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
M1992	CAL000068972	940225	NOT REPORTED	NOT REPORTED	
<b>Mailing City:</b>		TRACY			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A	
<b>Agency Address:</b>		ORCHARD SUPPLY HARDWARE 2650 N. MACARTHUR TRACY, CA 953760000			
<b>Phone:</b>		4082813500			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>	
HAZNI	CAL000076188	931013	NOT REPORTED	NOT REPORTED	
<b>Mailing Address:</b>		2650 N MACARTHUR			
<b>Mailing City:</b>		TRACY			
<b>Mailing Zip:</b>		953760000			
<b>Contact Name:</b>		REYES, VINCENT			
<b>Contact Phone:</b>		2098333149			
<b>County UST - County Underground Storage Tank / SRC# 98</b>		<b>Agency ID:</b>		003941	
<b>Agency Address:</b>		ORCHARD SUPPLY HARDWARE 2650 MACARTHUR DR TRACY, CA 95376			
<b>Underground Tanks:</b>		1			
<b>Aboveground Tanks:</b>		NOT REPORTED			
<b>Tanks Removed:</b>		NOT REPORTED			



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Tank ID:</b>	001U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	WASTE OIL	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	750 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED

<b>VISTA Address*:</b>	<b>DEPUY ORTHOTECH 1905 N MACARTHUR DR TRACY, CA 95376</b>	<b>VISTA ID#:</b>	4062498
		<b>Distance/Direction:</b>	0.12 MI / S
		<b>Plotted as:</b>	Point

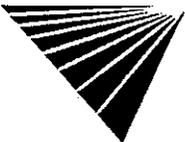
Map ID  
**3**

**FINDS - Facility Index System / SRC# 6**

<b>Agency Address:</b>	DEPUY ORTHOTECH 1905 N MACARTHUR DR TRACY, CA 953760000		
<b>Indian Land:</b>	NO	<b>Federal Facility:</b>	NO
<b>Duns #:</b>	NOT REPORTED		
<b>SIC Code:</b>	NOT REPORTED NOT REPORTED		
<b>Program Name:</b>	RCRIS		
<b>Agency ID:</b>	CAD983664541		

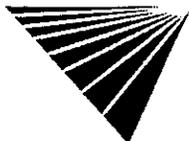
**RCRA-SmGen - RCRA-Small Generator / SRC# 15**

<b>Agency Address:</b>	SAME AS ABOVE		
<b>EPA Region:</b>	09		
<b>Mailing Address:</b>	1905 N MACARTHUR DR		
<b>City, State, Zip:</b>	TRACY, CA 95376		
<b>Significant Non-Complier Indicator:</b>	HANDLER IS NOT A SIGNIFICANT NON-COMPLIER AT BEGINNING OF FISCAL YEAR.		
<b>RCRA Facility Classification(s):</b>	HANDLER IS NOT A MEMBER OF THE SUBJECT TO CORRECTIVE ACTION UNIVERSE.		
<b>Notification Type:</b>	NOTIFICATION DATA - CORE		
<b>Contact:</b>	GREGORY		
<b>Title:</b>	BIDLACK VP MFG		
<b>Phone:</b>	(209) 832-5200		
<b>Contact Address:</b>	1905 N MACARTHUR DR		
<b>Owner/Operator Indicator:</b>	PREVIOUS OWNER		
<b>Owner/Operator Type:</b>	PRIVATE		
<b>Owner/Operator Name:</b>	ORTHO TECH		
<b>Phone:</b>	(209) 832-5200		
<b>Address:</b>	1905 N MACARTHUR		
<b>Owner/Operator Indicator:</b>	CURRENT OWNER		
<b>Owner/Operator Type:</b>	PRIVATE		
<b>Owner/Operator Name:</b>	DEPUY INC		
<b>Phone:</b>	(219) 267-8143		
<b>Address:</b>	PO BOX 988		
<b>Generator Indicator:</b>	SMALL QUANTITY GENERATOR		



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Transporter Indicator:</b>	<i>UNVERIFIED</i>
<b>TSD Indicator:</b>	<i>NOT A TSD, UNVERIFIED</i>
<b>Burner/Blender Indicator:</b>	<i>UNVERIFIED</i>
<b>HWF Market to Burner Indicator:</b>	<i>NO GENERATOR-MARKETING-TO-BURNER ACTIVITY</i>
<b>HWF Other Marketer Indicator:</b>	<i>NO OTHER MARKETER ACTIVITY</i>
<b>HWF Burner Indicator:</b>	<i>NO BURNER ACTIVITY</i>
<b>Used Oil Fuel Burner Indicator:</b>	<i>NO MARKETING TO BURNER ACTIVITY</i>
<b>Used Oil Fuel Burner Indicator:</b>	<i>NO USED OIL FUEL BURNER ACTIVITY</i>
<b>Spec Used Oil Marketing Indicator:</b>	<i>NO SPEC. USED OIL FUEL MARKETING ACTIVITY</i>
<b>Utility Boiler Indicator:</b>	<i>NO ACTIVITY</i>
<b>Industrial Boiler Indicator:</b>	<i>NO ACTIVITY</i>
<b>Industrial Furnace Indicator:</b>	<i>NO ACTIVITY</i>
<b>Underground Injection Control Indicator:</b>	<i>NO ACTIVITY</i>
<b>Used Oil Recycler Indicator:</b>	<i>UNVERIFIED</i>
<b>Used Oil Transporter Indicator:</b>	<i>NO USED OIL TRANSPORT/TRANSFER FACILITY ACTIVITY</i>
<b>Used Oil Processor/Re-refiner:</b>	<i>NO PROCESS/RE-REFINE ACTIVITY</i>
<b>Air Transporter Indicator:</b>	<i>DOES NOT TRANSPORT BY AIR</i>
<b>Rail Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY RAIL</i>
<b>Road Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY ROAD</i>
<b>Water Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY WATER</i>
<b>Generator Status:</b>	<i>RCRA REGULATED</i>
<b>Information Source:</b>	<i>NOTIFICATION</i>
<b>Date Submitted:</b>	<i>04/28/1997</i>
<b>Fields Not Reported by the Source Agency for this Site:</b>	<i>Other Transportation Indicator(1), Generator Status Description(1), Transporter Status Description(1), TSD Status Description(1), Burner/Blender Status Description(1), Transporter Status(1), TSD Status(1), Burner/Blender Status(1), Used Oil Recycler RCRA Regulatory Status(1)</i>



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		ORTHO TECH INC 1905 MACARTHUR TRACY, CA 953760000	
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b> <b>Cortese Flag:</b>
HAZNT	CAD983664541	931012	NOT REPORTED      NOT REPORTED
<b>Mailing Address:</b>		1905 MACARTHUR	
<b>Mailing City:</b>		TRACY	
<b>Mailing Zip:</b>		953760000	

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		ORTHO TECH INC 1905 MACARTHUR TRACY, CA 953760000	
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b> <b>Cortese Flag:</b>
FINDS	CAD983664541	940127	NOT REPORTED      NOT REPORTED
<b>Mailing City:</b>		TRACY	
<b>Mailing Zip:</b>		95376	

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374616121251601</b>	<b>VISTA ID#:</b>	8887680
	CA	<b>Distance/Direction:</b>	0.16 MI / SW
		<b>Plotted as:</b>	Point

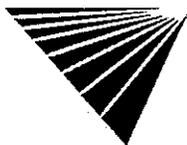
Map ID  
**4**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374616121251601	
<b>Use:</b>		INDUSTRIAL	
<b>Depth:</b>		417.0	
<b>Latitude:</b>		37.7711111111111	
<b>Longitude:</b>		-121.421111111111	
<b>Surface Elevation:</b>		14.00	
<b>Date Well Drilled:</b>		01/01/1935	
<b>County FIPS:</b>		6077	

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374621121252001</b>	<b>VISTA ID#:</b>	8887694
	CA	<b>Distance/Direction:</b>	0.27 MI / SW
		<b>Plotted as:</b>	Point

Map ID  
**5**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374621121252001	
<b>Use:</b>		INDUSTRIAL	
<b>Depth:</b>		247.0	
<b>Latitude:</b>		37.7725	
<b>Longitude:</b>		-121.4222222222	
<b>Surface Elevation:</b>		10.00	
<b>Static Water Level:</b>		.00	
<b>Date Well Drilled:</b>		01/01/1957	
<b>County FIPS:</b>		6077	



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

VISTA Address*:	USGS WATER WELL ID #374625121251201 CA	VISTA ID#:	8887699
		Distance/Direction:	0.28 MI / SW
		Plotted as:	Point

Map ID  
**6**

**USGS Wells - Federal Drinking Water Sources / SRC# 3**

Agency Address:	SAME AS ABOVE
Well ID:	374625121251201
Use:	INDUSTRIAL
Depth:	190.0
Latitude:	37.7736111111111
Longitude:	-121.42
Surface Elevation:	10.00
Static Water Level:	.00
Date Well Drilled:	01/01/1957
County FIPS:	6077

VISTA Address*:	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 0	VISTA ID#:	64862083
		Distance/Direction:	0.33 MI / SW
		Plotted as:	Point

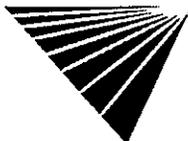
Map ID  
**7**

**Regional LUST - Regional Leaking Underground Storage Tank / SRC# 145**

Agency Address:	SAME AS ABOVE
Name:	HOLLY SUGAR
Address:	20500 HOLLY DR
City:	TRACY
State:	CA
County:	SAN JOAQUIN
Staff:	WMH
Substance:	GASOLINE
Case Type:	A
Case Type Description:	AQUIFER USED FOR DRINKING WATER
Remediation Status:	3B
Lead Agency:	LOP
Remdiation Status Description:	SITE ASSESSMENT UNDERWAY
Fields Not Reported by the Source	MTBE Code(1)
Agency for this Site:	

**State Spills / SRC# 147**

	EPA/Agency ID:	N/A
Agency Address:	HOLLY SUGAR - TRACY PLANT 20500 HOLLY DR TRACY, CA 0	
Facility:	HOLLY SUGAR - TRACY PLANT	
Address:	20500 HOLLY DR	
City:	TRACY	
County:	SAN JOAQUIN	
Unit:	AGT	
Status:	RI	
Pollutants:	D	
Lead:	JLH	



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

File: A  
 Report: A  
 Fields Not Reported by the Source *Address Description(1)*  
 Agency for this Site:

VISTA Address*:	<b>HOLLY SUGAR CORP. 20500 HOLLY DR. TRACY, CA</b>	VISTA ID#:	64505946
		Distance/Direction:	0.33 MI / SW
		Plotted as:	Point

Map II  
**7**

<b>AST - Above Ground Storage Tank / SRC# 60</b>	EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE	
Underground Tanks:	NOT REPORTED	
Aboveground Tanks:	NOT REPORTED	
Tanks Removed:	NOT REPORTED	

VISTA Address*:	<b>HOLLY SUGR 20500 HOLLY DRIVE TRACY, CA 95376</b>	VISTA ID#:	198390
		Distance/Direction:	0.33 MI / SW
		Plotted as:	Point

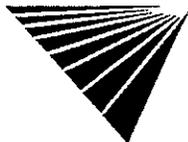
Map II  
**7**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>	Agency ID:	91-0577
Agency Address:	SAME AS ABOVE	
Spill Date Time:	NOVEMBER 6, 1990 04:00:00 PM	
Case Number:	91-0577	
Spill Location:	20500 HOLLY DRIVE	
Source Agency:	E	
Discharger Org:	HOLLY SUGR	
Material Spilled:	FUEL OIL #2 450.00 (GAL)	
Waterway Affected:	NONE	
Fields Not Reported:	<i>Discharger Name, Discharger Phone</i>	

<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>	<b>Facility Release:</b>	<b>Other Release:</b>
NO	NO	NO	NO	NO	NO

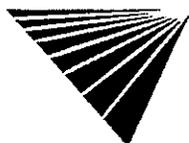
<b>ERNS - Emergency Response Notification System / SRC# 8</b>	EPA/Agency ID:	N/A
Agency Address:	HOLLY SUGAR HOLLY DRIVE TRACY, CA	
Spill Date Time:	AUGUST 29, 1989 01:12:00 PM	
Spill Location:	HOLLY DRIVE	
Discharger Org:	HOLLY SUGAR	
Material Spilled:	UMEDUST, 0.00 (UNK)	
Waterway Affected:	NONE	
Fields Not Reported:	<i>Case Number, Source Agency, Discharger Name, Discharger Phone</i>	

<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>	<b>Facility Release:</b>	<b>Other Release:</b>
NO	NO	NO	NO	NO	NO



PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	93-4846		
Agency Address:	HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376				
Spill Date Time:	JUNE 21, 1993 08:50:00 AM				
Case Number:	93-4846				
Spill Location:	20500 HOLLY DR				
Source Agency:	E				
Discharger Org:	HOLLY SUGAR CORP				
Material Spilled:	OILS.FUEL:#6, 100.00 (GAL)				
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	NO	NO	NO	NO	NO
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	92-4219		
Agency Address:	HOLLY SUGAR CORP 2500 HOLLY DR TRACY, CA 95376				
Spill Date Time:	MAY 21, 1992 10:25:00 AM				
Case Number:	92-4219				
Spill Location:	2500 HOLLY DR				
Source Agency:	E				
Discharger Org:	HOLLY SUGAR CORP				
Material Spilled:	HYDROCHLORIC ACID (5%), 1000.00 (GAL)				
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	NO	NO	NO	NO	NO
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-4221		
Agency Address:	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376				
Spill Date Time:	MAY 22, 1991 08:30:00 AM				
Case Number:	91-4221				
Spill Location:	20500 HOLLY DR				
Source Agency:	E				
Discharger Org:	HOLLY SUGAR				
Material Spilled:	HYDROCHLORIC ACID, 100.00 (GAL)				
Waterway Affected:	NONE				
Fields Not Reported:	Discharger Name, Discharger Phone				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	NO	NO	NO	NO	NO



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-4937
Agency Address:	HOLLY SUGAR 2500 HOLLY DR TRACY, CA 95376		
Spill Date Time:	JULY 8, 1991 08:00:00 AM		
Case Number:	91-4937		
Spill Location:	2500 HOLLY DR		
Source Agency:	E		
Discharger Org:	HOLLY SUGAR		
Material Spilled:	AMMONIA, 0.00 (OTH)		
Waterway Affected:	NONE		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
YES	NO	NO	NO NO NO

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	91-1348
Agency Address:	HOLLY SUGAR 20500 HOLLY DR. TRACY, CA 95376		
Spill Date Time:	DECEMBER 13, 1990 01:00:00 PM		
Case Number:	91-1348		
Spill Location:	20500 HOLLY DR.		
Source Agency:	E		
Discharger Org:	HOLLY SUGAR		
Material Spilled:	MURIATIC ACID, 10.00 (GAL)		
Waterway Affected:	NONE		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

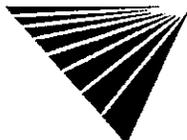
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	93-4846
Agency Address:	HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376		
Spill Date Time:	JUNE 21, 1993 08:50:00 AM		
Case Number:	93-4846		
Spill Location:	20500 HOLLY DR		
Source Agency:	E		
Discharger Org:	HOLLY SUGAR CORP		
Material Spilled:	OILS, FUEL: #6, 100.00 (GAL)		
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected		
Air Release:	Land Release:	Water Release:	Ground Release: Facility Release: Other Release:
NO	NO	NO	NO NO NO

<b>STATE UST - State Underground Storage Tank / SRC# 45</b>		EPA/Agency ID:	N/A
Agency Address:	HOLLY SUGAR CORP. 20500 HOLLY TRACY, CA 95376		
Underground Tanks:	1		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Tank ID:</b>	001U	<b>Tank Status:</b>	OTHER	
<b>Tank Contents:</b>	LEADED GAS	<b>Leak Monitoring:</b>	MONITOR PRESENT	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	UNKNOWN	
<b>Tank Size (Units):</b>	1000 (GALLONS)	<b>Tank Material:</b>	BARE STEEL	
<b>CORTESE / SRC# 53</b>		<b>Agency ID:</b>	390132	
<b>Agency Address:</b>	HOLLY SUGAR 20500 HOLLY TRACY, CA 95376			
<b>List Name:</b>	LEAKING TANK			
<b>Site ID:</b>	390132			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
AGI25	NOT REPORTED	931019	2063	NOT REPORTED
<b>Mailing Address:</b>	PO BOX 60			
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	95376			
<b>Contact Name:</b>	DAVID DUNCAN			
<b>Contact Phone:</b>	8353210			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	HOLLY SUGAR CORP. 20500 HOLLY DR TRACY, CA 95376			
<b>Phone:</b>	2098353210			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
UTNKI	NOT REPORTED	931022	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>	100 CHASE STONE CENTER			
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	95376			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
ARCPL	CAD981367741	931117	NOT REPORTED	NOT REPORTED
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	HOLLY SUGAR CORPORATION SUGAR FACILITY 20500 HOLLY DR TRACY, CA 95376			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
FINDS	CAD981367741	940127	NOT REPORTED	NOT REPORTED
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	95376			



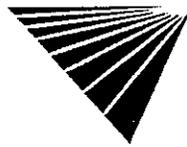
**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376	
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b> <b>Cortese Flag:</b>
LTNKA	390132	970707	NOT REPORTED      NOT REPORTED
<b>Mailing City:</b>		TRACY	
<b>Mailing Zip:</b>		95376	

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP., HOLLY SUGAR CORP. 20500 HOLLY DR TRACY, CA	
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b> <b>Cortese Flag:</b>
ATANK	NOT REPORTED	931020	NOT REPORTED      NOT REPORTED
<b>Mailing Address:</b>		P.O. BOX 60	
<b>Mailing City:</b>		TRACY	
<b>Contact Name:</b>		RICKIE A. SCHILLACI	
<b>Contact Phone:</b>		2098353210	

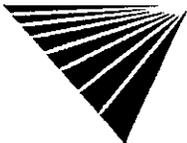
<b>County UST - County Underground Storage Tank / SRC# 98</b>		Agency ID:	005302
<b>Agency Address:</b>		HOLLY SUGAR CORP 20500 HOLLY DR TRACY, CA 95376	
<b>Underground Tanks:</b>		3	
<b>Aboveground Tanks:</b>		NOT REPORTED	
<b>Tanks Removed:</b>		NOT REPORTED	
<b>Tank ID:</b>	001U	<b>Tank Status:</b>	REMOVED
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	NOT REPORTED (NOT AVAILABLE)	<b>Tank Material:</b>	SINGLE WALLED
<b>Tank ID:</b>	002U	<b>Tank Status:</b>	REMOVED
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	NOT REPORTED (NOT AVAILABLE)	<b>Tank Material:</b>	SINGLE WALLED
<b>Tank ID:</b>	003U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE
<b>Tank Size (Units):</b>	12000 (GALLONS)	<b>Tank Material:</b>	SINGLE WALLED

<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 164</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		HOLLY SUGAR 20500 HOLLY DR TRACY, CA 95376	
<b>Site Name:</b>		HOLLY SUGAR	
<b>Street Number:</b>		20500	
<b>Street Name:</b>		HOLLY DR	
<b>City:</b>		TRACY	
<b>Zip:</b>		95376	
<b>Cross Street:</b>		LARCH RD	
<b>Region:</b>		05	



PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.

**County:** 39  
**Case Number:** 390132  
**Case Type:** ACQUIFIER  
**Lead Agency:** LOCAL AGENCY  
**Local Agency:** 39000  
**Status:** PRELIMINARY SITE ASSESSMENT UNDERWAY  
**Substance:** GASOLINE  
**Abatement Method:** AGENCY CODE 0  
**Enforcement Type:** NONE TAKEN  
**Funding:** AGENCY CODE 0  
**How LUST was Discovered:** TANK CLOSURE  
**How LUST was Stopped:** CLOSE TANK  
**MTBE Tested:** MTBE DETECTED  
**Groundwater Qualifier:** =  
**MTBE in Groundwater:** 62  
**Operator:** JOE HIGGS  
**Program:** LOCAL OVERSIGHT PROGRAM UST  
**Priority:** 1  
**Responsible Party:** HOLLY SUGAR  
**Staff:** WMH  
**Suspended:** N  
**Latitude:** 37.76516  
**Longitude:** -121.424893  
**Leak Cause:** UNKNOWN  
**Leak Source:** UNKNOWN  
**Summary:** LIAR FILLED OUT BY SAN JOAQUIN CO AFTER RWQCB REQUESTED ONE IN OCTOBER 1992. TWO GASOLINE TANKS REMOVED 10/18/85  
**Date Leak was Discovered:** 10/18/1985  
**Enter Date:** 3/14/1990  
**MTBE Date:** 10/5/1998  
**Report Date:** 12/11/1987  
**Review Date:** 11/5/1992



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284002

Date of Report: January 18, 2001

Version 2.7

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Fields Not Reported by the Source Agency for this Site:</b>	<i>County Code(1), Cleanup Fund ID(1), Interim Remedial Action(1), Local Case Number(1), Soil Qualifier(1), MTBE in Soil(1), Program(1), Quantity of Primary Substance Leaked (G)(1), Basin(1), Beneficial Use(1), Date Leak Confirmed(1), Date Prelim Site Assessment Workplan Sub(1), Date Preliminary Site Assessment Began(1), Date Pollution Characterization Began(1), Date Remediation Plan Submitted(1), Date Remedial Action Underway(1), Date Post Remedial Action Monitoring Beg(1), Date the Case was Closed(1), Date of Enforcement Action(1), Stop Date(1)</i>
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VISTA Address*: <b>HOLLY SUGAR CORP. TRACY FACTOR 20500 TRACY, CA 95376</b>	VISTA ID#:	1593863
	Distance/Direction:	0.33 MI / SW
	Plotted as:	Point

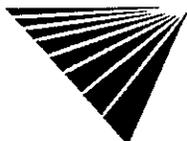
Map #  
**7**

<b>TRIS - Toxic Release Inventory System / SRC# 2</b>	EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE	
<b>Chemical Abstract Service Registry:</b>	<b>Quantity Released:</b>	
HYDROCHLORIC ACID	500.00 (POUNDS)	
AMMONIA	197817.00 (POUNDS)	

<b>FINDS - Facility Index System / SRC# 6</b>	EPA/Agency ID:	N/A	
Agency Address:	HOLLY SUGAR CORP. TRACY FACTOR 20500 HOLLY DR. TRACY, CA 95376		
Indian Land:	NOT REPORTED	Federal Facility:	NOT REPORTED
Duns #:	000762169		
SIC Code:	2063 MFG-BEET SUGAR		
SIC Code:	2063 2063		
Program Name:	TRIS		
Program Name:	AIR FACILITY SYSTEM		
Agency ID:	95376HLLYS20500		
Agency ID:	CA0079569		

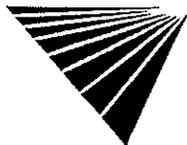
<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A		
Agency Address:	HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376			
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
HAZNT	CAD981367741	931008	NOT REPORTED	NOT REPORTED
Mailing Address:	PO BOX 60			
Mailing City:	TRACY			
Mailing Zip:	953760000			
Contact Name:	GARCIA L R			
Contact Phone:	2098353210			

<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A		
Agency Address:	HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376			
Regulated By:	ID #:	Record Creation Date:	SIC Code:	Cortese Flag:
S1987	391192	931014	2063	NOT REPORTED
Mailing City:	TRACY			
Mailing Zip:	95378			
Contact Name:	MATHEW FENSKE			
Contact Phone:	2098353210			



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1988	391192	931014	2063	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95378		
<b>Contact Name:</b>		MATHEW FENSKE		
<b>Contact Phone:</b>		2098353210		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1989	391192	931014	2063	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95378		
<b>Contact Name:</b>		MATHEW FENSKE		
<b>Contact Phone:</b>		2098353210		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1990	391192	931014	2063	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95378		
<b>Contact Name:</b>		MATHEW FENSKE		
<b>Contact Phone:</b>		2098353210		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1991	391192	931014	2063	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95378		
<b>Contact Name:</b>		MATHEW FENSKE		
<b>Contact Phone:</b>		2098353210		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		HOLLY SUGAR CORP. - TRACY FACTORY 20500 HOLLY DR TRACY, CA 95376		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
S1992	391192	931014	2063	NOT REPORTED



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

Mailing City: TRACY  
 Mailing Zip: 95378  
 Contact Name: MATHEW FENSKE  
 Contact Phone: 2098353210

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:		HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376	
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
M1990	CAD981367741	940218	NOT REPORTED NOT REPORTED
Mailing City:		TRACY	

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:		HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376	
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
M1991	CAD981367741	940224	NOT REPORTED NOT REPORTED
Mailing City:		TRACY	

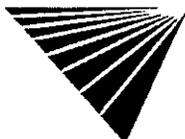
<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:		HOLLY SUGAR CORP SUGAR FCTY 20500 HOLLY DR TRACY, CA 95376	
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
M1992	CAD981367741	940224	NOT REPORTED NOT REPORTED
Mailing City:		TRACY	

VISTA Address*:	<b>TRACY MOTORS AUTO RECYCLER</b> 101 SLOAN CT TRACY, CA 95376	VISTA ID#:	428463
		Distance/Direction:	0.38 MI / SW
		Plotted as:	Point

Map ID  
**8**

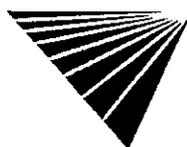
<b>FINDS - Facility Index System / SRC# 6</b>		EPA/Agency ID:	N/A
Agency Address:		SAME AS ABOVE	
Indian Land:	NO	Federal Facility:	NO
Duns #:	NOT REPORTED		
SIC Code:	NOT REPORTED NOT REPORTED		
Program Name:	RCRIS		
Agency ID:	CAD982028227		

<b>RCRA-SmGen - RCRA-Small Generator / SRC# 15</b>		Agency ID:	CAD982028227
Agency Address:		SAME AS ABOVE	
EPA Region:	09		
Mailing Address:	101 SLOAN CT		
City, State, Zip:	TRACY, CA 95376		
Significant Non-Complier Indicator:	HANDLER IS NOT A SIGNIFICANT NON-COMPLIER AT BEGINNING OF FISCAL YEAR.		
RCRA Facility Classification(s):	HANDLER IS NOT A MEMBER OF THE SUBJECT TO CORRECTIVE ACTION UNIVERSE.		
Notification Type:	NOTIFICATION DATA - CORE		



PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.

Contact:	ENVIRONMENTAL
Title:	MANAGER
Phone:	ENVIRO MANAGER
Contact Address:	(209) 835-4105
Owner/Operator Indicator:	101 SLOAN CT
Owner/Operator Type:	CURRENT OWNER
Owner/Operator Name:	PRIVATE
Phone:	WILLIFORD CURTIS
Address:	(415) 555-1212
Owner/Operator Indicator:	NOT REQUIRED
Owner/Operator Type:	CURRENT OPERATOR
Owner/Operator Name:	PRIVATE
Phone:	NOT REQUIRED
Address:	(415) 555-1212
SIC Code:	NOT REQUIRED
SIC Primary Indicator:	5521
SIC Code Source:	PRIMARY
Generator Indicator:	REPORTED BY FACILITY
Transporter Indicator:	SMALL QUANTITY GENERATOR
TSD Indicator:	UNVERIFIED
Burner/Blender Indicator:	NOT A TSD, UNVERIFIED
HWF Market to Burner Indicator:	UNVERIFIED
HWF Other Marketer Indicator:	NO GENERATOR-MARKETING-TO-BURNER ACTIVITY
HWF Burner Indicator:	NO OTHER MARKETER ACTIVITY
Used Oil Fuel Burner Indicator:	NO BURNER ACTIVITY
Used Oil Fuel Burner Indicator:	NO MARKETING TO BURNER ACTIVITY
Spec Used Oil Marketing Indicator:	NO USED OIL FUEL BURNER ACTIVITY
Utility Boiler Indicator:	NO SPEC. USED OIL FUEL MARKETING ACTIVITY
Industrial Boiler Indicator:	NO ACTIVITY
	NO ACTIVITY

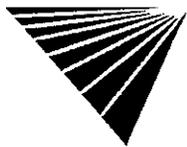


**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Industrial Furnace Indicator:</b>	<i>NO ACTIVITY</i>
<b>Underground Injection Control Indicator:</b>	<i>NO ACTIVITY</i>
<b>Used Oil Recycler Indicator:</b>	<i>UNVERIFIED</i>
<b>Used Oil Transporter Indicator:</b>	<i>NO USED OIL TRANSPORT/TRANSFER FACILITY ACTIVITY</i>
<b>Used Oil Processor/Re-refiner:</b>	<i>NO PROCESS/RE-REFINE ACTIVITY</i>
<b>Air Transporter Indicator:</b>	<i>DOES NOT TRANSPORT BY AIR</i>
<b>Rail Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY RAIL</i>
<b>Road Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY ROAD</i>
<b>Water Transportation Indicator:</b>	<i>DOES NOT TRANSPORT BY WATER</i>
<b>Generator Status:</b>	<i>RCRA REGULATED</i>
<b>Information Source:</b>	<i>EPA INSPECTION</i>
<b>Date Submitted:</b>	<i>09/01/1996</i>
<b>Fields Not Reported by the Source Agency for this Site:</b>	<i>Other Transportation Indicator(1), Generator Status Description(1), Transporter Status Description(1), TSD Status Description(1), Burner/Blender Status Description(1), Transporter Status(1), TSD Status(1), Burner/Blender Status(1), Used Oil Recycler RCRA Regulatory Status(1)</i>

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		<i>TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAD982028227</i>	<i>931012</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>101 SLOAN CT</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>953760000</i>		
<b>Contact Name:</b>		<i>WILLIFORD CURTIS</i>		
<b>Contact Phone:</b>		<i>2098354105</i>		

<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>		<i>TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 953760000</i>		
<b>Phone:</b>		<i>4155551212</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>RCRIS</i>	<i>CAD982028227</i>	<i>931020</i>		<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>101 SLOAN CT</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>Contact Name:</b>		<i>WILLIFORD CURTIS</i>		
<b>Contact Phone:</b>		<i>4155551212</i>		



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		TRACY MOTORS AUTO RECYCLER 101 SLOAN CT TRACY, CA 953760000	
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b> <b>Cortese Flag:</b>
<i>FINDS</i>	<i>CAD982028227</i>	<i>940127</i>	<i>NOT REPORTED</i> <i>NOT REPORTED</i>
<b>Mailing City:</b>		TRACY	
<b>Mailing Zip:</b>		95376	

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374555121253001</b>	<b>VISTA ID#:</b>	8887633
	CA	<b>Distance/Direction:</b>	0.43 MI / SW
		<b>Plotted as:</b>	Point

Map ID  
**9**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374555121253001	
<b>Use:</b>		IRRIGATION	
<b>Depth:</b>		200.0	
<b>Latitude:</b>		37.765277777777	
<b>Longitude:</b>		-121.425	
<b>Surface Elevation:</b>		16.00	
<b>Static Water Level:</b>		14.00	
<b>Date Well Drilled:</b>		01/01/1948	
<b>County FIPS:</b>		6077	

<b>VISTA Address*:</b>	<b>UNKNOWN</b>	<b>VISTA ID#:</b>	8579359
	4200 N. HOLLY	<b>Distance/Direction:</b>	0.44 MI / SW
	TRACY, CA 95376	<b>Plotted as:</b>	Point

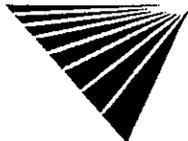
Map ID  
**9**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	92-4761
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Spill Date Time:</b>		JUNE 25, 1992 UNKNOWN	
<b>Case Number:</b>		92-4761	
<b>Spill Location:</b>		4200 N. HOLLY	
<b>Source Agency:</b>		E	
<b>Discharger Org:</b>		UNKNOWN	
<b>Material Spilled:</b>		WASTE OIL 6.00 (BBL)	
<b>Material Spilled:</b>		DEGREASER SOLVENT, 1.00 (BBL)	
<b>Fields Not Reported:</b>		Discharger Name, Discharger Phone, Waterway Affected	
<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b> <b>Facility Release:</b> <b>Other Release:</b>
NO	NO	NO	NO      NO      NO

<b>VISTA Address*:</b>	<b>USGS WATER WELL ID #374543121244801</b>	<b>VISTA ID#:</b>	8887610
	CA	<b>Distance/Direction:</b>	0.46 MI / S
		<b>Plotted as:</b>	Point

Map ID  
**10**

<b>USGS Wells - Federal Drinking Water Sources / SRC# 3</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>		SAME AS ABOVE	
<b>Well ID:</b>		374543121244801	
<b>Use:</b>		DOMESTIC	



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

Depth:	126.0
Latitude:	37.761944444444
Longitude:	-121.41333333333
Quadrangle Name:	UNION ISLAND
Section Township Range:	SESWNWS15T02SR05EM
Surface Elevation:	23.00
Static Water Level:	21.00
Date Well Drilled:	02/24/1975
County FIPS:	6077

VISTA Address*:	<b>SOLAR DRY SYSTEMS</b> 9801 SUGAR RD TRACY, CA 95376	VISTA ID#:	7719383
		Distance/Direction:	0.47 MI / SW
		Plotted as:	Point

Map II

**11**

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:		SOLAR DRY SYSTEMS 9801 SUGAR RD TRACY, CA 953760000	
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
HAZNT	CAL000001848	931012	NOT REPORTED NOT REPORTED
Mailing Address:		9801 SUGAR RD	
Mailing City:		TRACY	
Mailing Zip:		953760000	
Contact Name:		STANLEY TOM MGR	
Contact Phone:		2098365052	

<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:		SOLAR DRY SYSTEMS 9801 SUGAR RD TRACY, CA 953760000	
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
M1991	CAL000001848	940224	NOT REPORTED NOT REPORTED

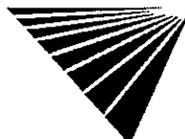
VISTA Address*:	<b>TRACY SEWAGE TRT PLANT</b> 3900 HOLLY DRIVE TRACY, CA 95376	VISTA ID#:	1269563
		Distance/Direction:	0.48 MI / SW
		Plotted as:	Point

Map II

**12**

<b>FINDS - Facility Index System / SRC# 6</b>		EPA/Agency ID:	N/A
Agency Address:		SAME AS ABOVE	
Indian Land:	NOT REPORTED	Federal Facility:	NO
Duns #:	982511487		
SIC Code:	4952 TCU-SEWERAGE SYSTEMS		
Program Name:	PERMIT COMPLIANCE SYSTEM		
Agency ID:	CA0079154		

<b>STATE UST - State Underground Storage Tank / SRC# 45</b>		EPA/Agency ID:	N/A
Agency Address:		CITY OF TRACY WASTEWATER TREAT 3900 HOLLY TRACY, CA 95376	
Underground Tanks:	1		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284002

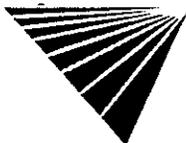
Date of Report: January 18, 2001

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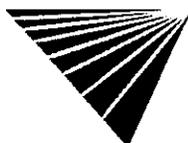
**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Tank ID:</b>	<i>T001U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>	
<b>Tank Contents:</b>	<i>PETROLEUM</i>	<b>Leak Monitoring:</b>	<i>MONITOR PRESENT</i>	
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>UNKNOWN</i>	
<b>Tank Size (Units):</b>	<i>7500 (GALLONS)</i>	<b>Tank Material:</b>	<i>BARE STEEL</i>	
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	<i>1X CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>			
<b>Phone:</b>	<i>2098361650</i>			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAC000114933</i>	<i>931008</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>	<i>3900 HOLLY DR</i>			
<b>Mailing City:</b>	<i>TRACY</i>			
<b>Mailing Zip:</b>	<i>953760000</i>			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	<i>1X CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>			
<b>Phone:</b>	<i>2098364420</i>			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAC000268193</i>	<i>931008</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>	<i>325 E. 10TH STREET</i>			
<b>Mailing City:</b>	<i>TRACY</i>			
<b>Mailing Zip:</b>	<i>953760000</i>			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	<i>CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAL000025100</i>	<i>931013</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>	<i>3900 HOLLY DR</i>			
<b>Mailing City:</b>	<i>TRACY</i>			
<b>Contact Name:</b>	<i>SAGASER ROBERT</i>			
<b>Contact Phone:</b>	<i>2098361650</i>			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	<i>CITY OF TRACY WASTE WATER TREA 3900 HOLLY DR TRACY, CA 953760000</i>			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>HAZNT</i>	<i>CAL000040030</i>	<i>931013</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>	<i>3900 HOLLY DR</i>			
<b>Mailing City:</b>	<i>TRACY</i>			
<b>Contact Name:</b>	<i>AMEZQUITA RUBEN</i>			
<b>Contact Phone:</b>	<i>2098361650</i>			
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	N/A	
<b>Agency Address:</b>	<i>CITY OF TRACY WASTEWATER TREAT 3900 HOLLY DR TRACY, CA 953760000</i>			
<b>Phone:</b>	<i>2098361650</i>			



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>UTNKA</i>	<i>NOT REPORTED</i>	<i>931022</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>560 S TRACY BLVD</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<b>N/A</b>	
<b>Agency Address:</b>		<i>CITY OF TRACY - WWTP 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Phone:</b>		<i>2098361650</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>STRMI</i>	<i>5B39S001284</i>	<i>931025</i>	<i>4952</i>	<i>NOT REPORTED</i>
<b>Mailing Address:</b>		<i>3900 HOLLY DR</i>		
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>Contact Name:</b>		<i>CHARLES PRINGLE</i>		
<b>Contact Phone:</b>		<i>2098361650</i>		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<b>N/A</b>	
<b>Agency Address:</b>		<i>TRACY SEWAGE TRT. PLANT 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>SWRCB</i>	<i>5B390108001</i>	<i>931027</i>	<i>4952</i>	<i>NOT REPORTED</i>
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>Contact Name:</b>		<i>FRANK MOTZKUS</i>		
<b>Contact Phone:</b>		<i>2098361650</i>		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<b>N/A</b>	
<b>Agency Address:</b>		<i>TRACY CITY OF WWTP 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>FINDS</i>	<i>CAD982511487</i>	<i>940127</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing City:</b>		<i>TRACY</i>		
<b>Mailing Zip:</b>		<i>95376</i>		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<b>N/A</b>	
<b>Agency Address:</b>		<i>1X CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>M1990</i>	<i>CAC000268193</i>	<i>940218</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>
<b>Mailing City:</b>		<i>TRACY</i>		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>	<b>N/A</b>	
<b>Agency Address:</b>		<i>CITY OF TRACY 3900 HOLLY DR TRACY, CA 953760000</i>		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
<i>M1990</i>	<i>CAL000025100</i>	<i>940218</i>	<i>NOT REPORTED</i>	<i>NOT REPORTED</i>



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284002

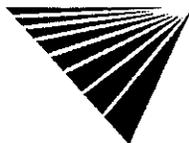
Date of Report: January 18, 2001

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Mailing City:</b>	TRACY
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 164</b>	<b>EPA/Agency ID:</b> N/A
<b>Agency Address:</b>	TRACY WASTE WATER 3900 HOLLY DR TRACY, CA 95376
<b>Site Name:</b>	TRACY WASTE WATER
<b>Street Number:</b>	3900
<b>Street Name:</b>	HOLLY DR
<b>City:</b>	TRACY
<b>Zip:</b>	95376
<b>Cross Street:</b>	I-205
<b>Region:</b>	05
<b>County:</b>	39
<b>Case Number:</b>	391016
<b>Case Type:</b>	UNKNOWN
<b>Lead Agency:</b>	LOCAL AGENCY
<b>Local Agency:</b>	39000
<b>Status:</b>	LEAK BEING CONFIRMED
<b>Substance:</b>	DIESEL
<b>Abatement Method:</b>	AGENCY CODE0
<b>Enforcement Type:</b>	NONE TAKEN
<b>Funding:</b>	AGENCY CODE0
<b>How LUST was Discovered:</b>	TANK CLOSURE
<b>How LUST was Stopped:</b>	CLOSE TANK
<b>MTBE Tested:</b>	SITE NOT TESTED FOR MTBE
<b>Program</b>	LOCAL IMPLEMENTING AGENCY UST
<b>Priority:</b>	2
<b>Responsible Party:</b>	TRACY, CITY OF
<b>Staff:</b>	WMH
<b>Suspended:</b>	N
<b>Latitude:</b>	38.542587
<b>Longitude:</b>	-121.389884
<b>Leak Cause:</b>	UNKNOWN
<b>Leak Source:</b>	UNKNOWN
<b>Date Leak Confirmed</b>	1/20/1998
<b>Date Leak was Discovered:</b>	1/20/1998



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Enter Date:</b>	8/4/1998
<b>Report Date:</b>	6/29/1998
<b>Fields Not Reported by the Source Agency for this Site:</b>	County Code(1), Cleanup Fund ID(1), Interim Remedial Action(1), Local Case Number(1), Soil Qualifier(1), MTBE in Soil(1), Groundwater Qualifier(1), MTBE in Groundwater(1), Operator(1), Quantity of Primary Substance Leaked (G)(1), Basin(1), Beneficial Use(1), Summary(1), Date Prelim Site Assessment Workplan Sub(1), Date Preliminary Site Assessment Began(1), Date Pollution Characterization Began(1)

VISTA Address*:	TRACY WASTE WATER 3900 HOLLY DR TRACY, CA 95376	VISTA ID#:	64860635
		Distance/Direction:	0.48 MI / SW
		Plotted as:	Point
Regional LUST - Regional Leaking Underground Storage Tank / SRC# 145		Agency ID:	3270

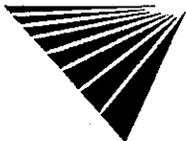
Map ID  
**12**

<b>Agency Address:</b>	TRACY WASTE WATER 3900 HOLLY DR TRACY, CA 0
<b>Name:</b>	TRACY WASTE WATER
<b>Address:</b>	3900 HOLLY DR
<b>City:</b>	TRACY
<b>State:</b>	CA
<b>County:</b>	SAN JOAQUIN
<b>Staff:</b>	WMH
<b>Substance:</b>	DIESEL
<b>Case Type:</b>	U
<b>Case Type Description:</b>	UNDEFINED
<b>Remediation Status:</b>	1
<b>Lead Agency:</b>	LIA
<b>Remdiation Status Description:</b>	LEAK BEING CONFIRMED/LEAK REPORT SUBMIT
<b>Fields Not Reported by the Source Agency for this Site:</b>	MTBE Code(1)

VISTA Address*:	TRACY, CITY OF 3900 HOLLY DR TRACY, CA 95376	VISTA ID#:	4986496
		Distance/Direction:	0.48 MI / SW
		Plotted as:	Point
CALFID / SRC# 54		EPA/Agency ID:	N/A

Map ID  
**12**

<b>Agency Address:</b>	TRACY, CITY OF 3900 HOLLY DR TRACY, CA 953760000			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
PCS	CAD982511487	931028	4952	NOT REPORTED
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	95376			
<b>Contact Name:</b>	DARRELL D. SCOTT			
<b>Contact Phone:</b>	2098361650			



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

VISTA Address*:	<b>SIERRA CHEMICAL 3900 HOLLY DRIVE TRACY, CA 95376</b>	VISTA ID#:	12711073
		Distance/Direction:	0.48 MI / SW
		Plotted as:	Point
<b>ERNS - Emergency Response Notification System / SRC# 8</b>		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Spill Date Time:	JANUARY 12 1999 02:00:00 PM		
Spill Location:	3900 HOLLY DRIVE		
Discharger Name:	SIERRA CHEMICAL		
Discharger Org:	SIERRA CHEMICAL		
Material Spilled:	sulfur dioxide, 0.00 (UNK)		
Fields Not Reported:	Case Number, Source Agency, Discharger Phone, Waterway Affected		
Air Release:	Lond Release:	Water Release:	Ground Release: Facility Release: Other Release:
YES	NO	NO	NO NO NO

Map ID  
**12**

VISTA Address*:	<b>3900 HOLLY DR TRACY, CA 95376</b>	VISTA ID#:	7776554
		Distance/Direction:	0.48 MI / SW
		Plotted as:	Point
<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:	3900 HOLLY DR TRACY, CA 953760000		
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
WDSE	58390108001	931027	NOT REPORTED NOT REPORTED

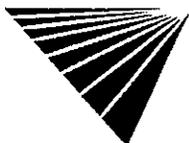
Map ID  
**12**

VISTA Address*:	<b>A.B. AUTOMOTIVE 3941 HOLLY DR TRACY, CA 95376</b>	VISTA ID#:	7775663
		Distance/Direction:	0.48 MI / SW
		Plotted as:	Point
<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:	A.B. AUTOMOTIVE 3941 HOLLY DR TRACY, CA		
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
HAZNT	CAL000079202	931013	NOT REPORTED NOT REPORTED
Mailing Address:	3941 UNIT B HOLLY DR		
Mailing City:	TRACY		
Mailing Zip:	953760000		
Contact Name:	BALATAYO, ABRAHAM		
Contact Phone:	2098358536		

Map ID  
**12**

VISTA Address*:	<b>TRACY SPEED MACHINE 3941 HOLLY DR TRACY, CA 95376</b>	VISTA ID#:	7775664
		Distance/Direction:	0.48 MI / SW
		Plotted as:	Point
<b>CALFID / SRC# 54</b>		EPA/Agency ID:	N/A
Agency Address:	TRACY SPEED MACHINE 3941 HOLLY DR TRACY, CA		
Regulated By:	ID #:	Record Creation Date:	SIC Code: Cortese Flag:
HAZNT	CAL000025054	931013	NOT REPORTED NOT REPORTED

Map ID  
**12**



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

**Mailing Address:** 3941 HOLLY DR UNIT L  
**Mailing City:** TRACY  
**Contact Name:** MORRIS JOHN-OWNER  
**Contact Phone:** 2098357909

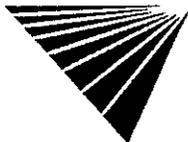
VISTA Address*:	<b>YELLOW FREIGHT SYSTEM</b> 1535 E. PESCADERO AVE TRACY, CA 95376	VISTA ID#:	3996560
		Distance/Direction:	0.48 MI / S
		Plotted as:	Point

Map ID  
**13**

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		Agency ID:	316677
<b>Agency Address:</b>	YELLOW FREIGHT SYSTEM 1535 E. PESCADERO AVE TRACY, CA		
<b>Spill Date Time:</b>	DECEMBER 9, 1995 11:55:00 PM		
<b>Case Number:</b>	316677		
<b>Spill Location:</b>	1535 E. PESCADERO AVE		
<b>Discharger Org:</b>	YELLOW FREIGHT SYSTEM		
<b>Waterway Affected:</b>	ATMOSPHERE		
<b>Fields Not Reported:</b>	Source Agency, Discharger Name, Discharger Phone, Material Spilled		
<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>
YES	NO	NO	NO
<b>Facility Release:</b>		<b>Other Release:</b>	
NO		NO	

<b>ERNS - Emergency Response Notification System / SRC# 8</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	YELLOW FREIGHT 1539 EAST PESCADERO AVE. TRACY, CA 95376		
<b>Spill Date Time:</b>	JULY 25, 1996 01:13:00 PM		
<b>Spill Location:</b>	1539 EAST PESCADERO AVE.		
<b>Discharger Org:</b>	YELLOW FREIGHT		
<b>Material Spilled:</b>	SEALANT GAS, 0.00 (OTH)		
<b>Material Spilled:</b>	- VENTING FOR 30 MINUTES, 0.00 (UNK)		
<b>Fields Not Reported:</b>	Case Number, Source Agency, Discharger Name, Discharger Phone, Waterway Affected		
<b>Air Release:</b>	<b>Land Release:</b>	<b>Water Release:</b>	<b>Ground Release:</b>
YES	NO	NO	NO
<b>Facility Release:</b>		<b>Other Release:</b>	
NO		NO	

<b>STATE UST - State Underground Storage Tank / SRC# 45</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	YELLOW FREIGHT SYSTEM, INC. 1535 E PESCADERO TRACY, CA 95376		
<b>Underground Tanks:</b>	7		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	NOT REPORTED		
<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	OIL (NOT SPECIFIED)	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	4000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS
<b>Tank ID:</b>	006U	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	MISC. CHEMICAL	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	FIBERGLASS
<b>Tank Size (Units):</b>	6000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

Tank ID:	006U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	OIL(NOT SPECIFIED)	Leak Monitoring:	MONITOR PRESENT
Tank Age:	NOT REPORTED	Tank Piping:	FIBERGLASS
Tank Size (Units):	6000 (GALLONS)	Tank Material:	FIBERGLASS
Tank ID:	006U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	OIL(NOT SPECIFIED)	Leak Monitoring:	MONITOR PRESENT
Tank Age:	NOT REPORTED	Tank Piping:	FIBERGLASS
Tank Size (Units):	6000 (GALLONS)	Tank Material:	FIBERGLASS
Tank ID:	006U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	OIL(NOT SPECIFIED)	Leak Monitoring:	MONITOR PRESENT
Tank Age:	NOT REPORTED	Tank Piping:	FIBERGLASS
Tank Size (Units):	10000 (GALLONS)	Tank Material:	FIBERGLASS
Tank ID:	006U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	OIL(NOT SPECIFIED)	Leak Monitoring:	MONITOR PRESENT
Tank Age:	NOT REPORTED	Tank Piping:	FIBERGLASS
Tank Size (Units):	1000 (GALLONS)	Tank Material:	FIBERGLASS
Tank ID:	006U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	MISC. CHEMICAL	Leak Monitoring:	MONITOR PRESENT
Tank Age:	NOT REPORTED	Tank Piping:	FIBERGLASS
Tank Size (Units):	10000 (GALLONS)	Tank Material:	FIBERGLASS

<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A
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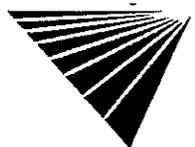
<b>Agency Address:</b>	YELLOW FREIGHT SYSTEM INC 1535 E. PESCADERO AVE TRACY, CA			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
HAZNT	CAL000037426	931013	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>	PO BOX 7270 QC DEPT			
<b>Mailing City:</b>	TRACY			
<b>Contact Name:</b>	BEAMER GARY MANAGER			
<b>Contact Phone:</b>	2099481510			

<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A
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<b>Agency Address:</b>	YELLOW FREIGHT SYSTEM, INC. 1535 E. PESCADERO AVE TRACY, CA			
<b>Phone:</b>	2098331300			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
UTNKA	NOT REPORTED	931022	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>	10990 ROE AVE			
<b>Mailing City:</b>	TRACY			
<b>Mailing Zip:</b>	95376			

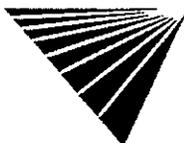
<b>CALFID / SRC# 54</b>	EPA/Agency ID:	N/A
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<b>Agency Address:</b>	YELLOW FREIGHT SYSTEMS 1535 E. PESCADERO AVE TRACY, CA			
<b>Phone:</b>	9133443409			
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
STRMI	5B39S003142	931025	4213	NOT REPORTED



**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Mailing Address:</b>		10990 ROE AVENUE		
<b>Mailing City:</b>		TRACY		
<b>Mailing Zip:</b>		95376		
<b>Contact Name:</b>		STEVE TRAVIS		
<b>Contact Phone:</b>		9133443409		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM INC 1535 E. PESCADERO AVE TRACY, CA		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
M1991	CAL000037426	940224	NOT REPORTED	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM INC 1535 E. PESCADERO AVE TRACY, CA		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
M1992	CAL000037426	940225	NOT REPORTED	NOT REPORTED
<b>Mailing City:</b>		TRACY		
<b>CALFID / SRC# 54</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM, INC., YELLOW FREI 1535 E. PESCADERO AVE TRACY, CA		
<b>Regulated By:</b>	<b>ID #:</b>	<b>Record Creation Date:</b>	<b>SIC Code:</b>	<b>Cortese Flag:</b>
ATANK	NOT REPORTED	931020	NOT REPORTED	NOT REPORTED
<b>Mailing Address:</b>		P.O. BOX 7270		
<b>Mailing City:</b>		TRACY		
<b>Contact Name:</b>		RICHARD SMITH		
<b>Contact Phone:</b>		2098331300		
<b>AST - Above Ground Storage Tank / SRC# 60</b>		<b>EPA/Agency ID:</b>		N/A
<b>Agency Address:</b>		YELLOW FREIGHT SYSTEM, INC. 1535 E. PESCADERO AVE TRACY, CA		
<b>Underground Tanks:</b>		NOT REPORTED		
<b>Aboveground Tanks:</b>		NOT REPORTED		
<b>Tanks Removed:</b>		NOT REPORTED		
<b>County UST - County Underground Storage Tank / SRC# 98</b>		<b>Agency ID:</b>		003854
<b>Agency Address:</b>		YELLOW FREIGHT 1535 E PESCADERO AVE TRACY, CA 95376		
<b>Underground Tanks:</b>		7		
<b>Aboveground Tanks:</b>		NOT REPORTED		
<b>Tanks Removed:</b>		NOT REPORTED		
<b>Tank ID:</b>	001U	<b>Tank Status:</b>	ACTIVE/IN SERVICE	
<b>Tank Contents:</b>	OTHER	<b>Leak Monitoring:</b>	NOT AVAILABLE	
<b>Tank Age:</b>	NOT REPORTED	<b>Tank Piping:</b>	NOT AVAILABLE	
<b>Tank Size (Units):</b>	10000 (GALLONS)	<b>Tank Material:</b>	DOUBLE WALLED	



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 381284002

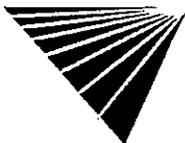
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**PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.**

<b>Tank ID:</b>	<i>002U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>
<b>Tank Contents:</b>	<i>WASTE OIL</i>	<b>Leak Monitoring:</b>	<i>NOT AVAILABLE</i>
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>NOT AVAILABLE</i>
<b>Tank Size (Units):</b>	<i>1000 (GALLONS)</i>	<b>Tank Material:</b>	<i>DOUBLE WALLED</i>
<b>Tank ID:</b>	<i>003U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>
<b>Tank Contents:</b>	<i>OTHER</i>	<b>Leak Monitoring:</b>	<i>NOT AVAILABLE</i>
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>NOT AVAILABLE</i>
<b>Tank Size (Units):</b>	<i>10000 (GALLONS)</i>	<b>Tank Material:</b>	<i>DOUBLE WALLED</i>
<b>Tank ID:</b>	<i>004U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>
<b>Tank Contents:</b>	<i>WASTE OIL</i>	<b>Leak Monitoring:</b>	<i>NOT AVAILABLE</i>
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>NOT AVAILABLE</i>
<b>Tank Size (Units):</b>	<i>6000 (GALLONS)</i>	<b>Tank Material:</b>	<i>DOUBLE WALLED</i>
<b>Tank ID:</b>	<i>005U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>
<b>Tank Contents:</b>	<i>OTHER</i>	<b>Leak Monitoring:</b>	<i>NOT AVAILABLE</i>
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>NOT AVAILABLE</i>
<b>Tank Size (Units):</b>	<i>6000 (GALLONS)</i>	<b>Tank Material:</b>	<i>DOUBLE WALLED</i>
<b>Tank ID:</b>	<i>006U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>
<b>Tank Contents:</b>	<i>OTHER</i>	<b>Leak Monitoring:</b>	<i>NOT AVAILABLE</i>
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>NOT AVAILABLE</i>
<b>Tank Size (Units):</b>	<i>6000 (GALLONS)</i>	<b>Tank Material:</b>	<i>DOUBLE WALLED</i>
<b>Tank ID:</b>	<i>007U</i>	<b>Tank Status:</b>	<i>ACTIVE/IN SERVICE</i>
<b>Tank Contents:</b>	<i>OTHER</i>	<b>Leak Monitoring:</b>	<i>NOT AVAILABLE</i>
<b>Tank Age:</b>	<i>NOT REPORTED</i>	<b>Tank Piping:</b>	<i>NOT AVAILABLE</i>
<b>Tank Size (Units):</b>	<i>4000 (GALLONS)</i>	<b>Tank Material:</b>	<i>DOUBLE WALLED</i>



\* VISTA address includes enhanced city and ZIP.

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Report ID: 381284002

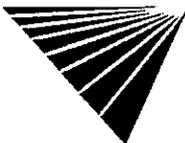
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**UNMAPPED SITES**

Records Found, No Details Displayed



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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

## DESCRIPTION OF DATABASES SEARCHED

### A) DATABASES SEARCHED TO 1/2 MILE

**NPL**  
**SRC#: 19** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for National Priorities List was August, 2000.**

The NPL Report is the US EPA's registry of the nation's worst uncontrolled or abandoned hazardous waste sites. NPL sites are targeted for possible long-term remedial action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

**SPL**  
**SRC#: 113** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for CalSites Database was October, 2000.**

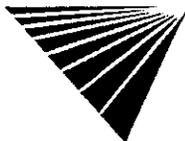
This database is provided by the Cal. Environmental Protection Agency, Dept. of Toxic Substances Control. The agency may be contacted at: 916-323-3400.

**CERCLIS**  
**SRC#: 17** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Comprehensive Environmental Response, Compensation and Liability Information Sys was August, 2000.**

The CERCLIS database is a comprehensive listing of known or suspected uncontrolled or abandoned hazardous waste sites. These sites have either been investigated, or are currently under investigation by the U.S. EPA for the release, or threatened release of hazardous substances. Once a site is placed in CERCLIS, it may be subjected to several levels of review and evaluation, and ultimately placed on the National Priorities List (NPL).

**NFRAP**  
**SRC#: 18** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for No Further Remedial Action Planned was August, 2000.**

The No Further Remedial Action Planned Report (NFRAP), also known as the CERCLIS Archive, contains information pertaining to sites which have been removed from the U.S. EPA's CERCLIS database. NFRAP sites may be sites where, following an initial investigation, either no contamination was found, contamination was removed quickly without need for the site to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration.



SCL  
SRC#: 112

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for CalSites Database was October, 2000.**

This database is provided by the Department of Toxic Substances Control. Two-thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

CORRACTS  
SRC#: 14

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Corrective Action Sites was March, 2000.**

The CORRACTS database contains information concerning RCRA facilities that have conducted, or are currently conducting a corrective action. A Corrective Action Order is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may also be imposed as a requirement of receiving and maintaining a TSDF permit.

ERNS  
SRC#: 8

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Emergency Response Notification System was December, 2000.**

ERNS is a national computer database system that is used to store information on the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party.

RCRIS-TSD  
SRC#: 12

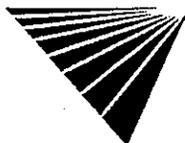
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Treatment, Storage and Disposal Facilities was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

RCRIS-TSDC  
SRC#: 556

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS TSDs Subject to Corrective Action was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDCs are treatment, storage and/or disposal facilities that are subject to corrective action under RCRA.



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RCRA-LQG  
SRC#: 16

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Large Quantity Generators was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRIS-SQG  
SRC#: 15

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Small Quantity Generators was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small Quantity Generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

RCRIS-VIOL  
SRC#: 11

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for RCRIS Facilities with Violations was March, 2000.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. The RCRIS Other report contains information concerning facilities that are "unclassified" within the RCRIS database (not classified as a Large Quantity Generator, Transporter, etc.).

SWLF  
SRC#: 23

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for USGS Solid Waste Landfills was December, 1991.**

This database is provided by the United States Geological Survey. The agency may be contacted at: 703-648-5613.

SWLF  
SRC#: 163

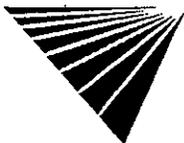
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Solid Waste Inventory System was October, 2000.**

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

SWLF-CO  
SRC#: 70

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for City of Los Angeles Landfills Transfer Stations was April, 1999.**

This database is provided by the City of Los Angeles, Environmental Affairs Department. The agency may be contacted at: 213-580-1070.



**SPILLS**  
**SRC#: 147**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Region 5 SLIC/DOD/DOE Site List was September, 2000.**

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3000.

**LUST**  
**SRC#: 164**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Leaking Underground Storage Tank Information System was October, 2000.**

This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-341-5740.

**LUST-REG**  
**SRC#: 108**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Region 6 Leaking Underground Storage Tanks was February, 2000.**

This database is provided by the Lahontan Region Six South Lake Tahoe. The agency may be contacted at: 530-542-5400.

**LUST-REG**  
**SRC#: 145**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Region 5 Leaking Underground Storage Tanks was April, 2000.**

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3125.

**UST**  
**SRC#: 45**

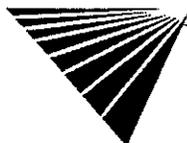
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Underground Storage Tanks was January, 1994.**

This historical database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. Please refer to the local level UST list for more current information. Be advised that some states do not require registration of heating oil tanks, especially those used for residential purposes.

**UST-CO-SJO**  
**SRC#: 98**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for San Joaquin County Underground Storage Tanks was July, 1999.**

This database is provided by the County of San Joaquin Environmental Health Division. The agency may be contacted at: 209-468-0340. Be advised: Many states do not require registration of heating oil tanks, especially those used for residential purposes.



**AST**  
**SRC#: 60**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Aboveground Storage Tanks was December, 1999.**

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

**TRIS**  
**SRC#: 2**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Toxic Release Inventory System was January, 1998.**

All facilities that manufacture, process, or import toxic chemicals in quantities in excess of 25,000 pounds per year are required to register with the EPA under Section 313 of the Superfund Amendments and Reauthorization Act (SARA Title III) of 1986. Data contained in the TRIS system covers approximately 20,000 sites and 75,000 chemical releases.

**CORTESE**  
**SRC#: 53**

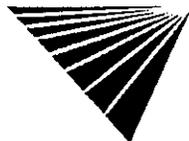
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Cortese List - Hazardous Waste Substance Site List was April, 1998.**

This database is provided by the Office of Environmental Protection, Office of Hazardous Materials. The agency may be contacted at: 916-445-6532. The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California under Government Code Section 65962.5. This database (CORTESE) is based on input from the following: (1)CALSITES-Department of Toxic Substances Control, Abandoned Sites Program Information Systems; (2)SARA Title III Section III Toxic Chemicals Release Inventory for 1987, 1988, 1989, and 1990; (3)FINDS; (4)HWIS-Department of Toxic Substances Control, Hazardous Waste Information System. Vista has not included one time generator facilities from Cortese in our database.; (5)SWRCB-State Water Resources Control Board; (6)SWIS-Integrated Waste Management Control Board (solid waste facilities); (7)AGT25-Air Resources Board, dischargers of greater than 25 tons of criteria pollutants to the air; (8)A1025-Air Resources Board, dischargers of greater than 10 and less than 25 tons of criteria pollutants to the air; (9)LTANK-SWRCB Leaking Underground Storage Tanks; (10)UTANK-SWRCB Underground tanks reported to the SWEEPS systems; (11)IUR-Inventory Update Rule (Chemical Manufacturers); (12)WB-LF- Waste Board - Leaking Facility, site has known migration; (13)WDSE-Waste Discharge System - Enforcement Action; (14)DTSCD-Department of Toxic Substance Control Docket.

**BORDER-ZON**  
**SRC#: 46**

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**The agency release date for Deed Restriction Properties Report was April, 1994.**

The Deeds Restrictions list, also known as the Border Zone Property List, contains information concerning voluntary deed restriction. These agreements are made with owners of property who propose building residences, schools, hospitals, or day care centers on property that is on or within 2,000 feet of potentially hazardous waste site.



**TOXICPITS** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**SRC#: 49** The agency release date for Toxic Pits was February, 1995.

This database is provided by the Water Quality Control Board, Division of Loans Grants. The agency may be contacted at: 916-227-4396.

**USGS-WELLS** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**SRC#: 3** The agency release date for USGS Water Wells was March, 1998.

The Ground Water Site Inventory (GWSI) database was provided by the United States Geological Survey (USGS). The database contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used or documented during research.

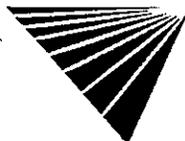
**FINDS** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**SRC#: 6** The agency release date for Facility Index System was February, 1999.

The FINDS report is an inventory of all facilities that are regulated or tracked by the U.S. Environmental Protection Agency. These facilities are assigned an identification number that serves as a cross-reference for other databases in the EPA's program system. Each FINDS record indicates the EPA Program Office that is responsible for the tracking of the facility.

**CALFID** VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
**SRC#: 54** The agency release date for Facility Inventory Data System was April, 1998.

This database is provided by the Environmental Protection Agency, Department of Toxic Substances Control. The agency may be contacted at: 916-323-3400.

End of Report



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

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Date of Report: January 18, 2001

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APPENDIX C  
ACOUSTICAL TERMINOLOGY

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<b>Acoustics</b>	The science of sound.
<b>Ambient Noise</b>	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
<b>Attenuation</b>	The reduction of an acoustic signal.
<b>A-Weighting</b>	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
<b>Decibel or dB</b>	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
<b>CNEL</b>	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
<b>Frequency</b>	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
<b>Ldn</b>	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
<b>Leq</b>	Equivalent or energy-averaged sound level.
<b>Lmax</b>	The highest root-mean-square (RMS) sound level measured over a given period of time.
<b>Loudness</b>	A subjective term for the sensation of the magnitude of sound.
<b>Masking</b>	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
<b>Noise</b>	Unwanted sound.
<b>Peak Noise</b>	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
<b>RT<sub>60</sub></b>	The time it takes reverberant sound to decay by 60 dB once the source has been removed.

**Sabin**

The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.

**Threshold  
of Hearing**

The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.

**Threshold  
of Pain**

Approximately 120 dB above the threshold of hearing.

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APPENDIX D  
AIR QUALITY MODELING/CALCULATIONS

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## Tracy WWTP EIR: Air Quality Analysis

PREPARED FOR: CH2M HILL File  
PREPARED BY: Jennifer Maio  
DATE: June 13, 2001

The purpose of this memo is to present the methodology used to evaluate the potential air quality impacts resulting from the construction and operation of the proposed project.

### Liquid process operational air emissions

Liquid process operational air emissions were estimated using the Bay Area Sewage Toxics Emissions (BASTE) model version 3.0. BASTE is a computational model created by the Bay Area Air Toxics Group that estimates pathway losses (volatilization, sorption, biodegradation) from wastewater for "strings" of processes that make up treatment trains. It allows analyses of complex treatment configurations including split flows, liquid streams, quiescent surfaces, drops, weirs, packed media, aerated processes, biological processes, and covered processes. This model has been used extensively by publicly owned treatment works (POTWs) in California to inventory air toxics emissions as required by AB2588.

To calculate future liquid process emissions from the WWTP, the BASTE model was run with current and future wastewater flows. Wastewater treatment plant existing and expansion conditions were based upon data outlined in the Facilities Plan, September 2000.

Influent VOC (or ROG) concentrations were based on the highest hydrocarbon concentrations from domestic raw sewage data collected from September 1993 to June 1994. Influent ammonia concentrations were based on the average of the maximum concentrations from data collected between November 1999 and October 2000. Influent hydrogen sulfide concentrations were based on data analyzed from samples collected on the weekend and during peak weekday hours. The WWTP after expansion will have an increase of approximately four onsite workers, which is not expected to significantly increase the effects to traffic in the area; therefore, mobile emissions (CO, NO<sub>x</sub>, ROG, PM<sub>10</sub>) for additional workers traveling to/from the site are not calculated. Table 1 and 2 present the results of the liquid process emissions model.

Based on the modeling data from BASTE, the project expansion has a beneficial impact relative to existing emissions. The proposed expansion actually decreases the emissions. Although the expansion nearly doubled the flow, the removal of the biotowers significantly decreased the emissions. This is primarily due to the high ventilation rate at the biotowers and the very low aeration rate at the aeration basins. The existing wastewater treatment configuration aerates raw sewage at the biotowers. Whereas the expansion configuration biologically treats the sewage first (anoxic zone of aeration basins), and then introduces air in the aeration zone. Therefore, a significant amount of BOD is destroyed prior to aeration.

## Solid process operational air emissions

Solid process operational air emissions were estimated using an emission factor for VOCs from solid processes obtained from the Joint Emissions Inventory Program (CH2M Hill, 1993) for twelve wastewater agencies operating in the South Coast Air Quality Management District. The total VOC emissions from the wastewater treatment plant were 260 lbs/year-avg MGD, or 4,160 lbs/yr at buildout. Table 3 provides the results of the solid process operational air emissions analysis.

## Flare operational emissions

Emissions from the combustion of waste gas via the flare were calculated using the AP 42 Emission Factors for Industrial Flares. The amount of waste gas for the flare was projected for the new facility process rate and emission factors from Tables 13.5-1 and 13.5-2, Chapter 13, Section 13.5, "Industrial Flares" (Source AP-42, 5<sup>th</sup> Edition, January 1995) were used to calculate emissions from the flare based on waste gas volume.

For the existing facility operating at 9.0 MGD, the estimated amount of waste gas flared is 120,000 ft<sup>3</sup>/day based on 3M BTU/hour available from the digesters at buildup and assuming 600 BTUs/ft<sup>3</sup>. An estimated 5,333,333 BTU/hour will be available from the digesters at buildup based on (16/9)\*3,000,000 BTU/hour. The estimated amount of waste gas flared after modifications will be 213,333 ft<sup>3</sup>/day based on (16/9) \*120,000 ft<sup>3</sup>/day.

The emissions increase (lbs) equals the difference between the modified facility emissions and the existing facility emissions. The flare was assumed to be non-smoking, therefore, the concentration of soot equals zero micrograms/liter.

Total VOC emissions from the waste gas flare is 2,943 lbs/yr of ethylene, acetylene, propane, and propylene. Total VOC emissions from the digester system do not include methane and ethane because they are excluded from the definition of VOCs per Rule 1020 of the San Joaquin Valley Unified Air Pollution Control District.

Table 4 provides the results of the flare emissions analysis. Table 5 presents the emissions factors used to determine the flare emissions.

## Construction Emissions

Construction vehicle emissions were calculated using Urbemis7, a CARB approved modeling program. Worker travel emissions to and from the project were based on guidance from the Bay Area Air Quality Management District (BAAQMD) CEQA guidelines, which were suggested for use by the SJVUAPCD Air Impact Guidelines.

Although construction activities are likely to be phased for the project, for the purpose of this analysis it was assumed that construction of all phases would occur simultaneously. Site grading, excavation, and earth moving emissions of fugitive dust were based on a period of 22 months or 440 construction days. Emissions from worker travel and mobile and stationary equipment are based on 24 months or 520 construction days. Emissions from painting are based on the painting operation occurring over 128 days using 4 workers. Each worker was assumed to apply approximately 50 ft<sup>2</sup> of paint per hour (considering surface prep) or 400 ft<sup>2</sup> per day (1,600 ft<sup>2</sup>/day for all workers).

Worker travel emissions calculations were based on 23,476 person-days over a 520-day work period, approximately 45 persons a day would be on site. It was assumed that each worker would commute. Each worker's commute would be 20 miles each way or 40 miles per day (2 - 20 mile trips per employee). It was also assumed that each worker would travel an additional 10 miles to account for internal trips while onsite.

Emission factors for worker travel are based on BAAQMD CEQA guidelines (pg. 32). CY2000 data and an average speed of 45 mph were used in these calculations. Table 6 presents the results of the construction emissions analysis. Tables 7 through 9 provide supporting data to the emissions analysis.

The SJVUAPCD's approach to CEQA analyses of construction impacts is to require implementation of effective and comprehensive control measures rather than require detailed quantification or emissions. Experience has shown that there are a number of feasible control measures that can be reasonably implemented to significantly reduce PM<sub>10</sub> (pollutant of concern) emissions from construction. The SJVUAPCD has determined that compliance with Regulation VIII for all sites and implementation of all other control measures as indicated below will constitute sufficient mitigation to reduce PM<sub>10</sub> impacts to a level considered less-than-significant. Implementation of the following Regulation VIII control measures are required at all construction sites:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring.
- The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.
- Use of blower devices is expressly forbidden.
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.

Because heavy duty equipment is being used on site during construction, the Lead Agencies may seek to reduce emissions from construction equipment exhaust through implement the following measures (SJVUAPCD Guidelines, pg. 62). These are not required but would be at the discretion of the Lead Agency. The SJVUAPCD recognizes that these measures are very difficult to implement due to poor availability of alternative fueled equipment and the challenge of monitoring these activities.

- Use of alternative fueled construction equipment
- Minimize idling time (e.g., 10 minute maximum)
- Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use
- Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set)
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways
- Implement activity management (e.g. rescheduling activities to reduce short-term impacts)

The demolition, renovation, or removal of asbestos-containing materials is subject to the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations (40CFR Part 61, Subpart M) requiring notification and inspection. Most demolitions and many renovations are subject to an asbestos inspection prior to start of activity. The SJVUAPCD's Compliance Division in the appropriate region should be consulted prior to commencing any demolition or renovation of any building to determine inspection and compliance requirements. Strict compliance with existing asbestos regulations will normally prevent asbestos from being considered a significant adverse impact.

Table 1  
Liquid Process Operational Emissions

<b>Pollutant</b>	<b>Existing (lb/day)</b>	<b>Expansion (lb/day)</b>	<b>Change in Emissions due to Project (lb/day)</b>
Ammonia	1,428	130	1,298
Cloroform	1.8	0.9	0.9
1,4 Dichlorobenzene	0.5	0.1	0.4
Di-n-butylphthalate	0	0	0
Ethylbenzene	0.1	0	0.1
Hydrogen Sulfide	7.1	0.9	6.2
Phenol	0	0	0
Toluene	0.2	0	0.2
Trichloroethane	0.1	0.1	0
Trichloroethene	0.1	0	0.1
Bis (2-ethylhexylphthalate)	0	0	0
Diethylphthalate	0	0	0
Xylenes	0.1	0	0.1

Table 2  
Liquid Process Emissions Model Results per wastewater treatment process (lbs/day)

Pollutant	Ammonia	Chloroform	1,4-Dichlorobenzene	Di-n-butylphthalate	Ethylbenzene	Hydrogen Sulfide	Phenol	Toluene	Trichloroethane	Trichloroethylene	Bis (2-ethylhexyl)phthalate	Diethylphthalate	Xylenes
Headworks	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Headworks	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prim Clarifiers	11.9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prim Clarifiers	35.6	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prim Clarifiers Weirs	114.3	0.2	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prim Clarifiers Weirs	91.4	0.1	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Distrb. Box	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Distrb. Box	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bio #1	641.7	0.8	0.2	0.0	0.0	3.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Aeration Basin 1/2 (anox)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aer. Basin #1	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aeration Basin 1/2 (aerob)	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Bio #2	641.7	0.8	0.2	0.0	0.0	3.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Aeration Basin 3/4 (anox)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aer. Basin #2	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aeration Basin 3/4 (aerob)	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Sec Clarifier	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sec Clarifier	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sec Clarifier Weirs	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sec Clarifier Weirs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floc/Coag Basin (Rapid Mix)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floc/Coag Basin (Floc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Filters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CI Contact Basin	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CI Contact Basin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CI Contact Basin Weir	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CI Contact Basin Weir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing Conditions	1428.2	1.8	0.5	0.0	0.0	7.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0
Future Condition	129.6	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0

Notes:  
Bold = future conditions

Table 3  
Solid process VOC operational air emissions

	VOC emissions (lbs) VOC emissions (tons)	
Existing facility flowrate -9.0 MGD	2340	1.17
Modified facility flowrate - 16.0 MGD	4160	2.08
<b>Total Emissions Increase</b>	<b>1820</b>	<b>0.91</b>

Notes: lbs - pound(s)      MGD - Million gallons per day

Table 4  
Waste Gas Emissions from Flare

	NOx	CO	Soot	Methane*	Ethane/Ethylene*	Acetylene	Propane	Propylene
Existing facility (9.0 MGD)	1,787.04	9,723.60	0.00	2,023.56	294.34	183.96	257.54	919.80
Modified facility (16.0 MGD)	3,176.96	17,286.40	0.00	3,597.44	523.26	327.04	457.86	1,635.20
Emissions Increase (lbs)	1,389.92	7,562.80	0.00	1,573.88	228.93	143.08	200.31	715.40
Emissions Increase (tons)	0.69	3.78	0.00	0.79	0.11	0.07	0.10	0.36
<b>Total VOCs Existing facility (lbs)*</b>					<b>1,655.64</b>			
<b>Total VOCs Modified facility (lbs)*</b>					<b>2,943.36</b>			

Notes: \*Total VOC emissions do not include methane and ethane because they are excluded from definition of VOCs per Rule 1020 of the San Joaquin Valley Unified Air Pollution Control District; however ethylene is not excluded so the the ethane/ethylene column represents ethylene.

Table 5  
Waste Gas Emissions Factors

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<b>Component</b>	<b>Emission factor (lb/10<sup>6</sup> BTU)</b>
Total Hydrocarbons	0.14
Carbon Monoxide	0.37
Nitrogen Oxides	0.068

<b>Total Hydrocarbons</b>	<b>Fraction (by volume)</b>
Methane	0.55
Ethane/Ethylene	0.08
Acetylene	0.05
Propane	0.07
Propylene	0.25

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Notes:

*Total Hydrocarbons = VOCs*

MGD = million gallons per day

Table 6  
Construction Emissions

Activity	Pollutant <sup>1</sup> (lbs/day)			
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>
Site Grading, Excavation, Earth Moving	2.51	32.08	---	2.79
Worker Travel	1.83	5.65	26.42	4.11
Stationary Equipment	0.40	0.32	---	0.02
Mobile Equipment	3.92	56.5	---	4.01
Painting	0.45	---	---	---
<b>Total (lbs/day):</b>	<b>9.11</b>	<b>94.55</b>	<b>26.42</b>	<b>10.93</b>

Table 7  
 Construction Worker Travel Emission Calculations

<i>BAAQMD Mobile Emission Factors (gm/mile)</i>			
<i>ROG</i>	<i>NOx</i>	<i>CO</i>	<i>PM10</i>
0.37	1.14	5.33	0.83
<b>Pollutant (lb/day)</b>			
<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>
1.83	5.65	26.42	4.11

$$45 \text{ empl./day} \times 2.5 \text{ trips/empl.} \times 20 \text{ mi/day*trip} = 2250 \text{ mi/day}$$

Table 8  
Labor Projections

Labor Projections (person days)	Laborers							Contractor's Management and Engineering	Engineering and Inspection	Totals
	Iron Workers	Operators	Carpenters	Painters	Electricians and I&C Techs	Masons	Millwrights and Techs			
<b>CM and Inspection</b>								2,607	1,564	4,171
<b>Equalization Pond (Unlined)</b>										
Excavation		180								200
Structural	20	180	40							310
Mechanical	80	10	5	40	20					155
Electrical						40				40
I&C						10				10
<b>Headworks</b>										
Excavation	20	10								30
Structural	80	20	40							320
Mechanical	80	5	180	40						315
Electrical						120				120
I&C						80				80
<b>Primary Clarifiers</b>										
Excavation	80	20								100
Structural	160	40	40							600
Mechanical	120	40	240	40						450
Electrical						120				120
I&C						80				80
<b>Aeration Basins</b>										
Excavation	160	40								200
Structural	320	80	80							1,200
Mechanical	240	80	480	80						900
Electrical						240				240
I&C						160				160
<b>Blower Building</b>										
Excavation	20	10								30
Structural	80	20	40						160	480
Mechanical	80	5	180	40						315
Electrical						240				240

Table 8  
Labor Projections

Labor Projections (person days)	Laborers										Contractor's Management and Engineering	Engineering and Inspection	Totals			
	Laborers	Carpenters	Operators	Iron Workers, and Millwrights	Painters	Electricians and I&C Techs	Masons									
I&C						120								120		
<b>RASWAS Pump Station</b>																
Excavation	20		10													30
Structural	80	180	20	40												320
Mechanical	80	10	5		180	40										315
Electrical																240
I&C										240						120
										120						
<b>Secondary Clarifiers</b>																
Excavation	160		40													200
Structural	320	720	80	80												1,200
Mechanical	240	80	20		480	80										900
Electrical										240						240
I&C										160						160
<b>Floc, Filters, and Backwash</b>																
Excavation	160		40													200
Structural	320	720	80	80							80					1,280
Mechanical	240	80	20		480	80										900
Electrical																240
I&C										240						160
										160						
<b>Chlorine Contact Basins</b>																
Excavation	107		27													133
Structural	213	480	53	53												800
Mechanical	160	53	13		320	53										600
Electrical																160
I&C										160						107
										107						
<b>Effluent Pump Station</b>																
Excavation	20		10													30
Structural	80	180	20	40												320
Mechanical	80	10	5		180	40										315
Electrical																120
										120						

Table 8  
Labor Projections

Labor Projections (person days)	Laborers	Carpenters	Operators	Iron Workers	Pipe Fitters and Millwrights	Painters	Electricians and I&C Techs	Masons	Contractor's Management and Engineering	Engineering and Inspection	Totals
I&C							80				80
<b>Civil Site Work</b>											
Outfall (33,000 ft long)	440		440		440						1,320
Yard Piping	200		200		400						800
Yard Electrical	200		200				400				800
Paving and Grading	200		200								400
<b>Totals</b>	<b>4,940</b>	<b>4,283</b>	<b>1,958</b>	<b>533</b>	<b>3,600</b>	<b>513</b>	<b>3,237</b>	<b>240</b>	<b>2,607</b>	<b>1,564</b>	<b>23,476</b>



Table 9  
Construction Equipment Projections

Equipment Projections (Equipment Days)	Fork Lift 50 hp	Fork Lift 175 hp	Front End Loader	Excavator [CAT 240]	20 Ton Wheeled Crane	75 Ton Wheeled Crane	Motor Grader	Paver	Scraper	On-Highway Truck	Off-Highway Truck	Pickup Truck	Air Compressors and Welders	Totals
Electrical I&C	-	-	-	-	-	-	-	-	-	10	-	20	10	40
Chlorine Contact Basins	-	-	-	-	-	-	-	-	-	2	-	20	10	32
Excavation	-	-	27	27	-	-	-	-	-	7	-	13	7	80
Structural	13	3	-	-	-	-	-	-	-	27	-	13	7	63
Mechanical	7	3	-	-	107	27	-	-	-	7	-	13	7	169
Electrical I&C	-	-	-	-	-	-	-	-	-	7	-	13	7	27
Effluent Pump Station	-	-	-	-	-	-	-	-	-	1	-	13	7	21
Excavation	-	-	5	5	-	-	-	-	-	5	-	5	5	25
Structural	10	1	-	-	-	-	-	-	-	10	-	5	5	31
Mechanical	5	1	-	-	20	2	-	-	-	5	-	5	5	43
Electrical I&C	-	-	-	-	-	-	-	-	-	5	-	5	5	15
Civil Site Work	-	-	-	-	-	-	-	-	-	1	-	5	5	11
Outfall (33,000 ft long)	-	-	220	220	-	-	-	-	-	-	-	-	-	-
Yard Piping	-	-	50	100	-	-	-	-	-	-	-	5	5	550
Yard Electrical	-	-	50	100	-	-	-	-	-	-	-	5	5	210
Paving and Grading	-	-	25	-	-	-	100	40	20	80	10	5	5	190
<b>Totals</b>	<b>200</b>	<b>43</b>	<b>537</b>	<b>612</b>	<b>767</b>	<b>177</b>	<b>100</b>	<b>40</b>	<b>180</b>	<b>610</b>	<b>90</b>	<b>562</b>	<b>353</b>	<b>4,270</b>

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APPENDIX E  
LARRY WALKER ASSOCIATES  
WATER QUALITY ANALYSIS OF SURFACE  
WATER DISCHARGE

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# CITY OF TRACY WASTEWATER TREATMENT PLANT EXPANSION EIR

## Water Quality Analysis of Surface Water Discharge

### I. INTRODUCTION

Future expansion of the City of Tracy Wastewater Treatment Plant (designated as WWTP), as defined in the City of Tracy Facilities Plan (Facilities Plan) (CH2M Hill, 2001), would produce an increased quantity of treated effluent to be discharged to Old River near its confluence with Paradise Cut. As part of the expansion project, the City plans to add facilities to improve the level of treatment prior to discharge. The effluent discharged from the proposed expanded treatment works may affect receiving water quality. Potential impacts of WWTP expansion to surface water quality in Old River and the Sacramento-San Joaquin Delta (Delta) are discussed below. Potential water quality-related impacts to aquatic life in Old River and the Delta are discussed in Section 4.8 of the Environmental Impact Report (EIR), Biological Resources.

### II. EXISTING CONDITIONS

#### The San Joaquin River and Delta

The 290-mile-long San Joaquin Valley occupies the southern half of the Central Valley and has an average width of 130 miles. It covers approximately 32,000 square miles, or one-fifth of California. The San Joaquin River basin is bounded on the west by the Coast Ranges and on the east by the Sierra Nevada. The Tulare Lake basin to the south is normally considered a separate drainage basin, but has contributed occasional flood flows and subsurface flows to the San Joaquin River during wet years (DWR, 1995a). The San Joaquin River itself is 330 miles in length and drains a watershed area of 13,540 square miles (DWR, 2000a). It flows west from the Sierra Nevada, turns sharply north at the center of the valley floor, and flows north through the valley into the Sacramento-San Joaquin Delta. San Joaquin River monthly average flows range from 500 to 1,500 cubic feet per second (cfs) in dry years, 1,500 to 3,500 cfs in normal years, and up to 20,000 cfs to 40,000 cfs in wet years (CALFED, 2000). Major tributaries draining the Sierra Nevada and flowing into the San Joaquin River include the Fresno, Stanislaus, Merced, and Tuolumne rivers. The San Joaquin River flows through portions of Fresno, Madera, Merced, Stanislaus, San Joaquin, Contra Costa, and Sacramento counties.

Historically, the San Joaquin River flowed into the Old River below Mossdale. Since 1967, DWR has installed a temporary fish control structure at the head of Old River on a seasonal basis to limit entry of protected fish species into Old River to avoid contact with the water project pumps. Beginning in 1991, DWR has installed temporary rock barriers during certain months of the year in Middle River, Old River near the Delta-Mendota Canal, and Old River near the San Joaquin River as part of its Temporary Barriers Project

associated with its South Delta Improvement Program (Entrix, 1996). These barriers are installed to increase water levels, circulation patterns, and water quality in the south Delta area for local agricultural diversions, as well as to improve operational flexibility of the State Water Project to help reduce fishery impacts and improve fishery conditions.

The Sacramento-San Joaquin Delta (Delta) forms the lowest part of the Central Valley, lying between the Sacramento and San Joaquin rivers and extending from the confluence of the two rivers inland as far as Sacramento and Stockton. The Delta is roughly bordered by the cities of Sacramento, Stockton, Tracy, and Pittsburg. Smaller cities within the Delta are Antioch, Brentwood, Isleton, and about 14 unincorporated towns and villages. The area receives runoff from over 45 percent of the State's land area including flows from 18 tributaries: the Sacramento, McCloud, Butte, Feather, Yuba, Bear, American, Merced, San Joaquin, Mokelumne, Cosumnes, Stanislaus, Tuolumne, Chowchilla, Fresno, Kings, Cache, Putah, and Calaveras rivers. The Delta is within the jurisdiction of six counties (Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo) and covers approximately 1,500 square miles interlaced with hundreds of miles of waterways (DWR, 1993). The Delta is clearly delineated by a legal boundary that includes the areas that historically were intertidal, along with supratidal portions of the floodplains of the Sacramento and San Joaquin rivers. Today's legal Delta extends between the upper extent of the tidewater (at the City of Sacramento on the Sacramento River and at Mossdale on the San Joaquin River) and Chipps Island in the west (CALFED, 2000).

The south Delta is made up of islands surrounded by levees, channels, and rivers. Most of the Delta islands have subsided and their average elevations are lower than the surfaces of the water bodies that surround them. The interior surfaces of Delta islands often exist at or below sea level. The extensive levee system within the Delta constricts flow to a network of constructed and natural channels that reduce flood flow and inhibit the formation of new soils on Delta islands. The constructed channels within the project area are Grant Line Canal and Fabian-Bell Canal. Old River and Paradise cut are natural channels within the project area. Old River intersects the east and west ends of Grant Line Canal and Fabian-Bell Canal. These two cross-connected canals are parallel and run almost due west from their divergence with Old River at the Four Corners area to their re-convergence with Old River near the intake of Clifton Court Forebay and West Canal. From its confluence with the San Joaquin River to its east-side intersection with Grant Line Canal, Old River carries approximately two-thirds of the San Joaquin River flow as measured upstream at Vernalis when barriers are not in place. Beyond the eastern confluence of Old River and Grant Line Canal the majority of the flow travels down Grant Line Canal (Entrix, 1996). Much of the Sacramento-San Joaquin Delta is tidally influenced, and flow through its many waterways is influenced by both downstream freshwater flows from Delta tributaries and upstream movement of seawater.

## The City of Tracy

The City of Tracy (the City) is located in San Joaquin County, California, near the cities of Stockton, Lathrop, and Manteca in the South Sacramento-San Joaquin Delta (Figure E-1). The project site is located within the northern portion of the City of Tracy Urban Management Plan (UMP) area, on the corner of Larch Road and Holly Drive. The project area lies north of Interstate 205 and east of County Route J13, also known as Tracy Boulevard. The proposed WWTP expansion area adjoins the current wastewater treatment facility, with a land use designation of Public Facilities in the City of Tracy UMP. The project site falls with the City Core Contiguous Area. Other current land uses in the project area are primarily industrial, including the Holly Sugar refining facility (now decommissioned) and a scrap metal recycling facility. In addition, agricultural land currently planted with alfalfa is adjacent to the project area. With the exception of the southern area of the expanded city limits (the Tracy Hills Specific Planning Area), wastewater from all near-term developments is planned to be conveyed to the WWTP (CH2M Hill, 2001).

## Beneficial Uses of the San Joaquin River and Delta

The beneficial uses of the San Joaquin River and the Delta include domestic, municipal, industrial, and agricultural water supply; recreation, aesthetic enjoyment; navigation; groundwater recharge; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources as provided by freshwater habitat (CVRWQCB, 1998). Protection and enhancement of existing and potential beneficial uses are goals of water quality planning. State and federal law mandate the protection of these uses, which are described in more detail below.

### **Recreation**

Water contact (water-dependent) recreation uses of the San Joaquin River and the Delta include swimming, wading, water-skiing, sport fishing and other recreational activities that involve a reasonable possibility of ingestion of water. Non-contact (water-enhanced) recreation uses include picnicking, sunbathing, hiking, camping, pleasure boating, hunting, bird watching, education and aesthetic enjoyment. The recreational resources of the Delta serve the increasing populations of several areas: the Sacramento metropolitan area to the north, the San Francisco Bay Area to the west, and the Stockton/Tracy/Modesto region to the east and south. The Delta's proximity to these major population centers maintains its growing popularity. Recreation in the Delta, mostly water-oriented (including both water-dependent and water-enhanced activities), currently exceeds 12 million user-days annually and is expected to increase concurrent with the populations of surrounding counties (DWR, 1993).

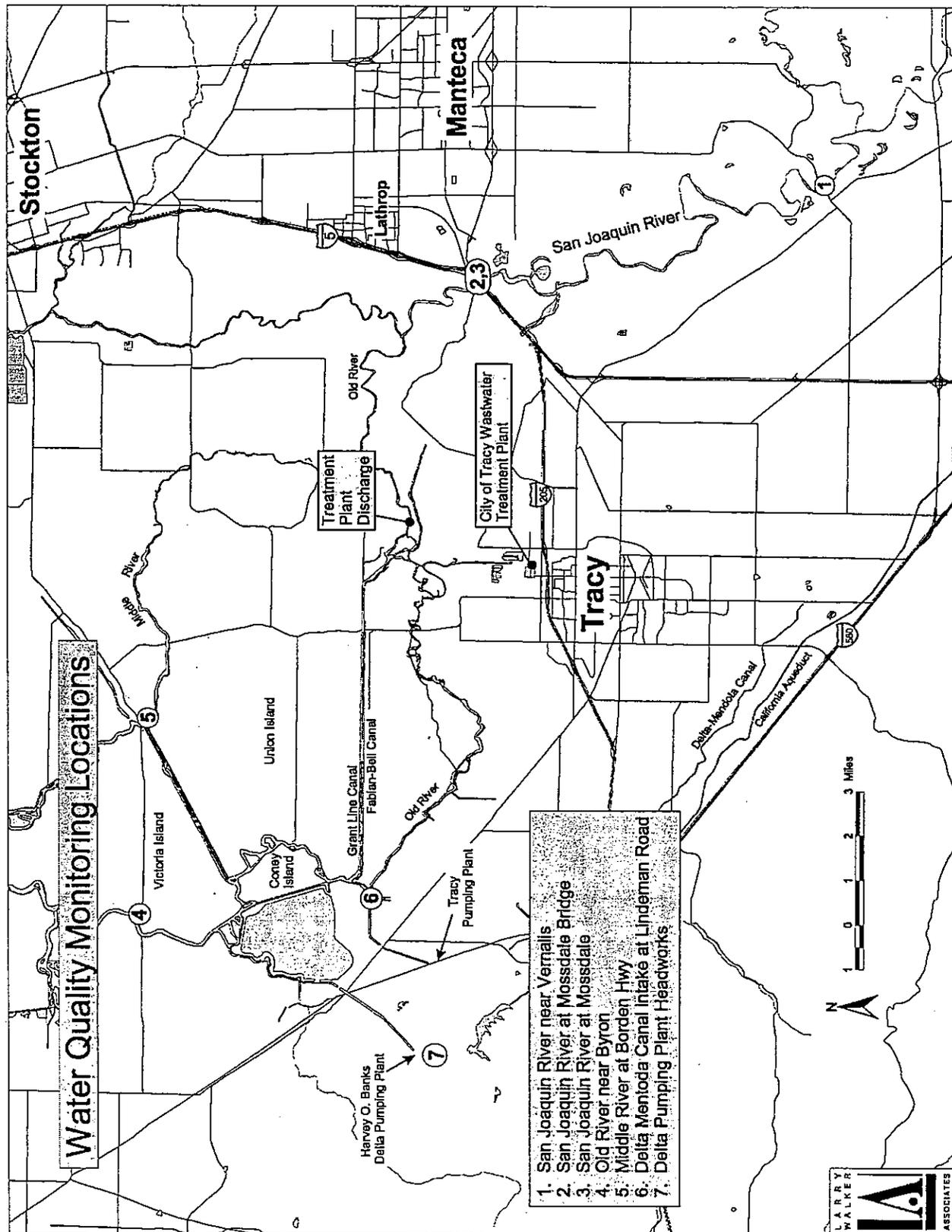


Figure E-1

Waterways are an obvious recreational resource in an area with long, hot, and dry summers, and the Sacramento-San Joaquin Delta's approximately 50,000 acres of water surface and nearly 1,100 miles of diked shoreline present many recreational opportunities. Boating is the single most popular pastime in the Delta, accounting for approximately 17 percent of all visits, followed by fishing (15 percent), relaxing (12 percent), sightseeing (11 percent), and camping (8 percent) (JSA, 1994). Sport fishing in the Delta is a year-round activity, involving the use of private watercraft and commercial passenger-carrying fishing vessels, as well as fishing along the shore. Important sport fish in the region include salmon, striped bass, steelhead trout, American shad, and white sturgeon (DWR, 1993).

### **Municipal and Industrial Water Supplies**

The City of Tracy obtains its water from two sources: surface water from the Central Valley Project (CVP) via the Delta-Mendota Canal (DMC), and groundwater pumping. The City holds a contract with the United States Bureau of Reclamation (USBR) for a fixed allotment of 10,000 acre-feet per year (AFY) of surface water from the CVP via the DMC. However, this allotment is subject to reductions in dry years, and in recent years the City has typically received only 7,500 to 9,000 AFY of CVP water. Surface water in the DMC originates from the Sacramento-San Joaquin Delta and is pumped into the DMC from Old River and Clifton Court Forebay. The City diverts water from the DMC directly to its water treatment plant (WTP), where it is treated, stored and released into the distribution system. The WTP is located at the southern end of the City adjacent to the DMC, and has the capacity to provide treatment for up to 15 mgd (KJC, 1994).

In years when allowable surface water diversions have been severely limited due to drought conditions, the City has occasionally shut down the WTP and used groundwater as its sole source of supply. The City operates ten wells that provide the groundwater supply. The source of the groundwater is primarily the lower zone of the Tulare Formation, which is part of a regional aquifer system in the San Joaquin sub-region of the Central Valley groundwater basin. Based on a 1990 groundwater yield study (KJC, 1990), the maximum recommended long-term annual groundwater extraction rate for the City was estimated to be approximately 6,000 AFY. Therefore, the City's total available water supply, including its 10,000 AFY allotment of surface water from the DMC, is estimated to be approximately 16,000 AFY. However, the ultimate safe yield of the regional aquifer system supplying the Tracy area has not been quantified (KJC, 1994).

In an effort to meet the City's projected future water supply needs in terms of reliability, quantity and quality, the City has entered into a joint project with the South San Joaquin Irrigation District (SSJID) and three local municipalities. The South County Surface Water Supply Project (SCSWSP) is a joint venture of the SSJID and the cities of Tracy, Lathrop, Manteca and Escalon (Participating Cities), to supply treated potable water to these participating cities. The primary objective of the SCSWSP is to provide a safe, reliable drinking water supply to the SSJID service area and the greater South County area. The project involves construction and operation of a new water treatment plant at Woodward Reservoir in Stanislaus County, and a 36.5 mile 20- to 54-inch water

transmission pipeline with pumping facilities to deliver treated water to turnouts for each city. The SSJID's source of water is the Stanislaus River, based on pre-1914 rights and post-1914 appropriate rights for direct diversion and diversion to storage. SSJID proposes to develop the project in two phases: Phase I (2003-2011) would provide for deliveries of approximately 31,000 AF of potable water per year, and Phase II (2011-2025) would increase the total annual delivery to approximately 44,000 AF. The quantity of water to be supplied by the SCSWSP to the City of Tracy would remain constant at 10,000 AFY during the period 2003 - 2025 (ESA, 1999). A final EIR was issued in May 2000 (ESA, 2000) and the project awaits certification by SSJID pending the resolution of ongoing litigation in response to the proposed project.

In the Delta, diversions for municipal water supplies are made by Antioch (at the Antioch Water Works), Contra Costa Water District (intakes at Rock and Mallard sloughs, and the intake for Los Vaqueros Reservoir from Old River near Hwy 4), the State Water Project's (SWP) North and South Bay Aqueducts (at Barker Slough and Clifton Court Forebay, respectively), and the Central Valley Project's (CVP) Delta-Mendota Canal (intake at Tracy). Current Delta diversions by SWP and CVP systems for municipal and industrial use are approximately 2.5 million AFY (DWR, 1995b).

Industrial use of San Joaquin River and Delta water is divided into two categories: service supply water and process supply water. Industrial service supply uses are defined as those which do not depend on water quality and include mining, plant cooling, hydraulic conveyance, gravel washing, fire protection and oil well re-pressurization. Industrial process supply uses are those related to the manufacture of products. Diversions for these uses are scattered throughout the San Joaquin and Delta areas, with the major industrial diversions located in the Pittsburg-Antioch area. A portion of the State and Federal Water Project diversions and Contra Costa Canal diversions are also used for industrial service and process supply.

Municipal and industrial use of the San Joaquin River and Delta waters may be affected by high salinity, pathogens and trihalomethane formation. Trihalomethanes (THMs), which may pose health risks to humans, are compounds that are produced through the process of chemically disinfecting drinking water with chlorine or ozone. THM formation potential (THMFP) is a measurement of the capacity of natural waters to form THMs and is largely a function of organic carbon (dissolved and total) and bromide concentrations in the water supply. Additionally, levels of *Cryptosporidium*, *Giardia*, and other pathogens in Delta waters are of concern to municipal water suppliers. The concentration of total and dissolved organic carbon, total dissolved solids, THMs, and pathogens in Old River has the potential to be altered by the discharge of treated effluent to that water body. Particular attention is focused on these water quality issues in this section. The receiving water quality and WWTP effluent contributions in regard to these constituents are discussed further in the sections below titled "Existing Surface Water Quality" and "Projected Effluent Quality", respectively.

## **Agricultural Water Supply**

Extensive use is made of San Joaquin River and Delta waters for agricultural purposes. These uses include the irrigation of crops, orchards, and pastures, stock watering, support of vegetation for range grazing, and ranching and farming support operations. Annual water diversions from the Delta by SWP and CVP systems for agriculture are estimated (based on DWR and USBR data) to reach 4.3 million AFY by 2030 (DWR, 1995b). In addition to the State and federal water project diversions for agriculture outside of the San Joaquin River and Delta areas, there are about 2,000 privately owned diversions for agricultural water supply scattered throughout the Delta (Sacramento, County of, 1997; CALFED, 2000). Most of the individual diversions are riverside turnouts (pumping stations) with an intake extending into the river. A portion of the water diverted through the Contra Costa Canal at Rough Slough is also used for agricultural purposes.

## **Groundwater Recharge**

Water from the San Joaquin River and the Delta also serves to recharge groundwater systems. Groundwater recharge functions to maintain soil column salt balance, to prevent salt water intrusion into freshwater aquifers, and provides for future extraction for other beneficial uses. Large amounts of water are stored in thick sedimentary deposits in the San Joaquin Valley groundwater basin. Groundwater is used intensively in some areas, but only slightly in areas where surface water supplies are adequate to meet consumptive uses. Groundwater is replenished through deep percolation of stream flow, precipitation, and applied irrigation water. Recharge by subsurface inflow is negligible compared to other sources. Groundwater quality is generally adequate throughout the San Joaquin Valley and the Sacramento-San Joaquin Delta, although at shallow depths within the Delta the water is often saline and contains high levels of total dissolved solids (TDS) and dissolved minerals. High levels of TDS and salinity may adversely affect consumer acceptance of drinking water and may require additional treatment plant operations by municipal water suppliers. High TDS may also reduce the ability to implement local water management programs, such as wastewater recycling, and may reduce options for blending with other water supplies.

## **Aquatic Life and Wildlife**

The San Joaquin River and the waterways of the Delta provide important habitat to a diverse variety of aquatic life and wildlife. This includes temporary habitat and migration routes for anadromous and other migratory species, as well as permanent habitat for resident species. Fish dependent on the Delta as a migration corridor, nursery, or permanent residence include striped bass, American shad, sturgeon, Chinook salmon, steelhead, catfish, largemouth bass, and numerous other estuarine and freshwater species. Aquatic habitat ranges from fresh water in the upper reaches of both the San Joaquin River and Delta to brackish in the lower reaches, particularly during periods of low Delta outflow. Transition from one zone to the next is gradual, and the zones move up or downstream depending on tidal phase and the amount of fresh water entering the Delta. The amount and quality of water flowing through the Delta, as well as the amount and

quality of food resources available to aquatic organisms, greatly influences the overall productivity of the area on an annual basis. The same is true for fish and other aquatic species living within the San Joaquin River system. Species of anadromous fish found in the area generally have higher water quality requirements than resident species.

The riparian and wetland habitats of the San Joaquin River and Delta have been extensively and permanently altered by urban and agricultural development. In California, 90 percent of the original 5 million acres of wetlands has been lost in the last century (SJVDP, 1990). While fresh water emergent wetlands occur throughout California, most of them are located in the Klamath Basin, the Sacramento and San Joaquin Valleys, the Delta, and the Imperial Valley/Salton Sea area. Although riparian and wetland habitats no longer support the abundance and diversity of wildlife that they once did, the San Joaquin River and Delta still provide important habitat for ducks, geese, and other species. The complex interface between land and water in the Delta provides rich and varied habitat for wildlife, especially birds. The Delta is particularly important to waterfowl migrating via the Pacific Flyway. More than one million waterfowl are frequently in the Delta at one time (DBW, 2001). Numerous species of mammals, non-game birds, reptiles, amphibians, and plants are also present in the area, but the abundance of most of these species is limited by the availability of suitable habitat. For additional discussion of aquatic and wildlife resources inhabiting the San Joaquin River watershed and Delta, see Section 4.8 of the EIR, Biological Resources.

#### Existing Surface Water Quality

The water quality of the lower San Joaquin River drainage and the Sacramento-San Joaquin Delta has been significantly affected by human activities. As the lands of these two contiguous regions were converted to agricultural and urban uses over the past century, changes in water quality and aquatic habitats have occurred through several mechanisms. Intensive use of pesticides and fertilizers, which enter surface waters in various ways, has altered water quality in the region (Kuivila and Foe, 1995; Domagalski et al., 1997; Kratzer and Shelton, 1997; Brown et al., 2000). Pesticide concentrations sometimes reach levels acutely toxic to sensitive invertebrates (Kuivila and Foe, 1995). Agricultural return flows also may contain high concentrations of dissolved solids and trace elements that can degrade water quality (Hill and Gilliom, 1993; Brown, 1997). Additionally, watersheds upstream and tributary to the San Joaquin River and Delta contribute pollutants and stressors that produce or exacerbate water quality problems in the region. Construction of the Stockton Deep Water Channel, in combination with increased nutrient levels and hydraulic modification (channelization) of the San Joaquin River system, has created an area of seasonally depressed dissolved oxygen near Stockton. Salts and dissolved mineral concentrations in the region have increased through expanded agricultural and urban use of water.

The value of water is determined by its potential uses. In turn, the uses that can be made of water are determined by its quality. Water of degraded quality may not adequately support uses deemed beneficial by State and federal authorities. The need for action to correct water quality problems in the San Joaquin River, Sacramento-San Joaquin Delta

and their watersheds arises from recognition that water quality degradation negatively affects, or has the potential to negatively affect, a number of beneficial uses of the waters (including municipal/domestic, industrial, agricultural, groundwater, recreation, and aquatic habit uses). The Section 303(d) list (SWRCB, 1998) of the Clean Water Act (CWA) requires states to identify water bodies with impaired quality with respect to supporting beneficial uses. This process has resulted in both the San Joaquin River and Delta waterways being listed as impaired due to a variety of pollutants and stressors (see Table E-1).

**Table E-1. 1998 California Section 303(d) Listed Water Bodies in the Project Area.**

<b>Water Body</b>	<b>Pollutant/Stressor</b>	<b>Listed Source</b>
<i>Delta Waterways</i>	Chlorpyrifos	Agriculture Urban Runoff
	DDT	Agriculture
	Diazinon	Agriculture
	Electrical Conductivity	Agriculture
	Group-A Pesticides <sup>1</sup>	Agriculture
	Mercury	Resource Extraction (abandoned mines)
	Organic Enrichment/ Low Dissolved Oxygen	Municipal Point Sources Urban Runoff
	Unknown Toxicity	Source Unknown
<i>Lower San Joaquin River</i>	Boron	Agriculture
	Chlorpyrifos	Agriculture
	DDT	Agriculture
	Diazinon	Agriculture
	Electrical Conductivity	Agriculture
	Group-A Pesticides <sup>1</sup>	Agriculture
	Selenium	Agriculture
	Unknown Toxicity	Source Unknown
<i>Stockton Deep Water Channel</i>	Dioxin	Point Source (USEPA listing)
	Furans	Point Source (USEPA listing)
	PCBs	Point Source (USEPA listing)

1. Group-A Pesticides include the following organochlorine pesticides: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene. Many of these pesticides have been banned from use.

Long-term, comprehensive, surface water quality evaluations of the San Joaquin River and the Sacramento-San Joaquin Delta are limited to a handful of water quality monitoring programs, including, but not limited to, the California Department of Water Resources (DWR) Municipal Water Quality Investigations (MWQI) Program and the Department of Water Resources D-1485 Water Quality Monitoring Program. Since 1982

the MWQI Program, and its earlier incarnation as the Interagency Delta Health Aspects Monitoring Program, has focused its efforts on the determination and evaluation of contaminants that affect drinking water quality in the Delta. The MWQI Program presently collects water quality data on conventional pollutants, total and dissolved organic carbon (TOC and DOC), total trihalomethane formation potential (TTHMFP), and selected trace elements, minerals, and nutrients at 27 monitoring sites located throughout the greater Delta region and Suisun Bay. Similarly, the Compliance and Monitoring/Analysis Branch of the DWR Environmental Services Office has been collecting basic water quality data in the Delta, Suisun Marsh, and San Pablo Bay through the Decision 1485 (D-1485) Water Quality Monitoring Program since 1983. The State Water Resources Control Board (SWRCB) mandated the establishment of this program in their passing of Decision 1485. In general, DWR-MWQI monitoring data provided a more comprehensive and useful assessment of surface water quality at selected sites of interest in the project area. In order to evaluate nutrient concentrations in the San Joaquin River near Vernalis, water quality data from the U.S. Geological Survey (USGS) National Water-Quality Assessment (NAWQA) Program were used in the present analysis. Since 1991, the NAWQA Program has collected water quality data in cooperation with other federal, State, and local agencies to understand the spatial extent of water quality, how water quality changes with time, and how human activities and natural factors affect water quality across the Nation. The NAWQA Program examined water quality in the San Joaquin River Basin from 1992-1995.

The present analysis of existing surface water quality considered available relevant data from selected water quality monitoring sites sampled by the DWR-MWQI, DWR-D-1485, and USGS-NAWQA monitoring programs (see Table E-2). Water quality monitoring sites were selected in order to demonstrate ambient water quality conditions (a) in the main stem San Joaquin River upstream of the proposed City of Tracy discharge at Old River, (b) within the south central Delta at Middle River, and (c) at three locations in the southwestern Delta near municipal water supply intake structures (see Figure 1T: Regional Map). The City of Tracy municipal water intake is located in the Delta-Mendota Canal, while one of the Contra Costa Water District's three municipal water intakes is located in Old River near Highway 4. Water from the State Water Project's (SWP) Clifton Court Forebay is pumped by the Harvey O. Banks Delta Pumping Plant into the 444-mile long California Aqueduct. It should be noted that the extent of the present analysis is limited by the following factors: availability of data collected at the selected water quality monitoring sites in terms of both constituents analyzed and the time period over which the data were collected; and usefulness of data when considering laboratory detection limits and their relationship to relevant water quality criteria. The data used in the present surface water quality analysis represent the best available data, and provide the basis for the conclusions drawn from this investigation. The paucity of long-term water quality data covering both conventional and toxic pollutants in the San Joaquin River watershed and the Sacramento-San Joaquin Delta suggests that comprehensive water quality monitoring programs are needed to adequately characterize surface water quality in both regions.

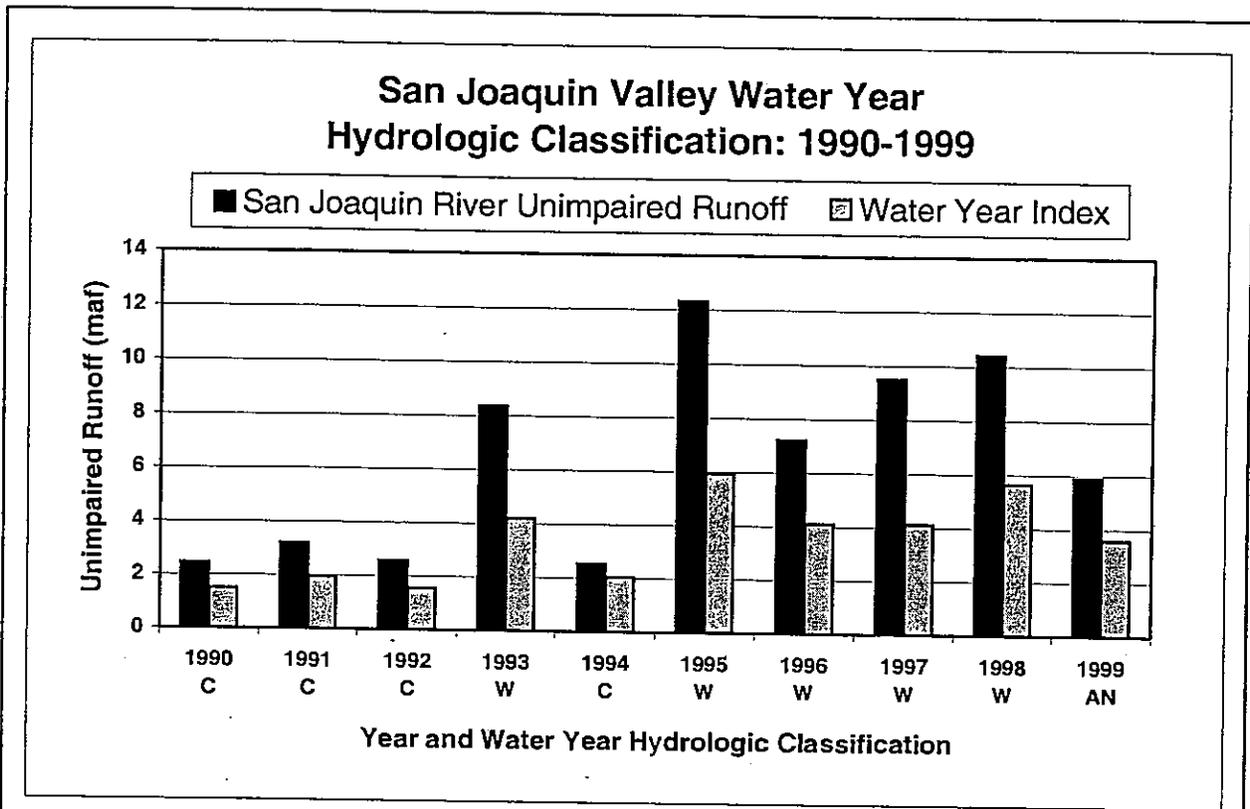
**Table E-2. Water Quality Monitoring Sites Considered in Analysis of Existing Surface Water Quality.**

Monitoring Program	Site Description	General Time Period of Monitoring Data <sup>1</sup>
DWR-MWQI and USGS-NAWQA	San Joaquin River near Vernalis	Jan 1990 – Aug 1999
DWR-MWQI and DWR-D-1485	San Joaquin River at Mossdale Bridge	Jan 1990 – Jun 1999
DWR-MWQI	Middle River at Borden Highway	Jan 1990 – Sep 1997
DWR-MWQI	Delta Pumping Plant Headworks	Jan 1990 – Sep 1999
DWR-MWQI	Delta-Mendota Canal Intake at Lindemann Road	Jan 1990 – May 1999
DWR-MWQI	Old River near Byron (MWQI Station #9)	Jan 1990 – Sep 1999

1. Dates shown represent maximum time periods covered by certain data sets. Time periods covered by specific data sets examined in the current analyses (as determined by site and constituent) can be found in Appendices F and G.

Data for 13 water quality parameters (TDS, DOC, TOC, fecal coliform, dissolved oxygen, specific conductance, pH, temperature, ammonia, total organic nitrogen, total phosphorus, dissolved copper, and hardness as CaCO<sub>3</sub>) measured at selected sites in the project area (see Appendix F) were compiled and summary statistics calculated to provide existing surface water quality information for two different water year types: critical dry years and wet/above normal years. The analysis of water quality data for two distinct water year hydrologic classifications provided information on existing surface water quality in the project area under the widely variable hydrologic conditions experienced by California's Central Valley. Using California Department of Water Resources water year hydrologic classifications for the San Joaquin Valley (see Figure E-2), water quality data collected from 1990 to 1992 was used to determine baseline surface water quality in the project area during critical dry water years, and data collected from 1995 to 1999 was used to elucidate baseline surface water quality during wet/above normal years. Summary statistics for surface water quality data collected during critical dry and wet/above normal water years are presented in Appendix F. Data for the above-listed water quality parameters were also compared to relevant minimum water quality criteria (see Table E-3). In this comparison, water quality data collected from 1990 through 1999 (where available) were analyzed to determine compliance to regulatory standards during a 10-year period that included critical, above normal and wet water year hydrologic classifications (Figure E-2). Monitoring periods of the data sets used in the comparison to criteria evaluations are presented in Appendix G.

Figure E-2. San Joaquin Valley Unimpaired Runoff and Water Year Classification: 1990-1999.



**Notes:**

- The data presented above were generated by the California Department of Water Resources (see <http://cdec.water.ca.gov/cgi-progs/iodir/wsihist>). These indices have been used operationally by DWR for planning and managing of water supplies since 1995, and are defined in SWRCB Revised Decision 1641 (2000) (see <http://www.waterrights.ca.gov/baydelta/d1641.htm>).
- A water year extends from Oct 1 - Sep 30.
- Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or export of water to or import of water from other basins.
- San Joaquin River Runoff is the sum of Stanislaus River inflow to New Melones Lake, Tuolumne River inflow to New Don Pedro Reservoir, Merced River inflow to Lake McClure, and San Joaquin River inflow to Millerton Lake.
- San Joaquin Valley Water Year Index =  $0.6 * \text{Current Apr-Jul Runoff in (maf)} + 0.2 * \text{Current Oct-Mar Runoff in (maf)} + 0.2 * \text{Previous Water Year's Index}$  [if the Previous Water Year's Index exceeds 4.5, then 4.5 is used].
- San Joaquin Valley Water Year Hydrologic Classification:
 

<p><b>Year Type:</b>                      W = Wet Year                      AN = Above Normal                      BN = Below Normal                      D = Dry                      C = Critical</p>	<p><b>Water Year Index:</b>                      Equal to or greater than 3.8                      Greater than 3.1, and less than 3.8                      Greater than 2.5, and equal to or less than 3.1                      Greater than 2.1, and equal to or less than 2.5.                      Equal to or less than 2.1</p>
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Table E-3. Comparisons of Surface Water Quality with Water Quality Criteria

Parameter	Minimum Relevant WQ Criteria	Regulatory Source	Frequency of Compliance <sup>1</sup>	Monitoring Sites Considered in Water Quality Data Analysis
Total Dissolved Solids	none	n/a	n/a	All DWR-MWQI sites listed in Table 2T
Total Organic Carbon	none	n/a	n/a	SJR near Vernalis Delta Pumping Plant Old River near Byron
Dissolved Organic Carbon	none	n/a	n/a	All DWR-MWQI sites listed in Table 2T
Fecal Coliform	200 MPN/ 100 mL	Basin Plan	54.5%	SJR near Vernalis
			60.0%	SJR at Mossdale Bridge
			81.8%	Middle River at Borden Hwy
			88.9%	Delta Pumping Plant
			81.8%	DMC intake at Lindemann Rd.
Dissolved Oxygen	5 mg/L	Basin Plan	90.9%	Old River near Byron
			100%	SJR near Vernalis
			100%	SJR at Mossdale Bridge
			98.9%	Middle River at Borden Hwy
			99.2%	Delta Pumping Plant
Electrical Conductivity (as Specific Conductance)	A. 700 $\mu$ mhos/cm Apr. 1 - Aug. 31	Basin Plan	99.2%	DMC Intake at Lindemann Rd.
			89.1%	Old River near Byron
			57.1%, 93.3%	SJR near Vernalis
			100%, 100%	SJR at Mossdale Bridge
			96.4%, 100%	Middle River at Borden Hwy
<i>Objectives for San Joaquin River near Vernalis</i>	B. 1000 $\mu$ mhos/cm Sept. 1 - Mar. 31		79.0%, 100%	Delta Pumping Plant
			87.2%, 100%	DMC Intake at Lindemann Rd.
			98.2%	Old River near Byron
			89.1%	SJR near Vernalis
			98.9%	SJR at Mossdale Bridge
pH	6.5 - 8.5 standard units	Basin Plan	98.9%	Middle River at Borden Hwy
			98.5%	Delta Pumping Plant
			98.6%	DMC Intake at Lindemann Rd.
			97.3%	Old River near Byron
Temperature	none	n/a	n/a	All monitoring sites listed in Table 2T
Ammonia, Dissolved as N	Ammonia tox. sliding scale based on pH	EPA	100%	No ammonia toxicity observed at any monitoring site listed in Table 2T
Copper, Dissolved	5.12 $\mu$ g/L <sup>2</sup>	CTR	97.8%	SJR near Vernalis

1. Frequency of compliance calculated as percent of data in compliance with relevant water quality criterion.
2. Dissolved copper criterion is based on specific calculation where field-measured hardness = 52.0 mg/L. Only a single exceedance of the CTR hardness-based dissolved copper criterion was observed for the San Joaquin River near Vernalis data set.

## **Total Dissolved Solids**

The salinity of Delta water (often measured by the concentration of total dissolved solids (TDS) in mg/L) is influenced by inflows from the ocean. With a TDS concentration of approximately 35,000 mg/L (compared to freshwater concentrations of a few hundred mg/L or less), seawater that enters the Delta dictates the TDS levels at various locations. Inflow of freshwater from the Sacramento River (TDS of 110 mg/l) and other Delta tributaries has the potential to limit the relative magnitude and location of seawater intrusion occurring at any given time. Due to the fact that seawater has a TDS concentration that is more than two orders of magnitude greater than that of Sacramento River water, Delta salinity is influenced more by the quantity (i.e., flow in cfs) of Sacramento River water entering the Delta than by its relative quality (i.e., TDS concentration). Although seawater intrusion is a primary factor affecting the salinity and TDS of Delta waters, agricultural and urban runoff, treated wastewater discharges, and agricultural drain return water also influence Delta TDS levels. The most heavily concentrated source of agricultural discharges to the Delta is along the San Joaquin River (CALFED, 2000). Agricultural drainage from Mud and Salt sloughs in the San Joaquin River watershed and from Sacramento Slough and Colusa Basin Drain in the Sacramento River watershed have been estimated to contribute 30-50% of the riverine TDS load to the Delta (Brown and Caldwell et al., 1995).

The analysis of TDS data for the six DWR-MWQI sites under study revealed that median TDS concentrations were greater at all sites during critical (dry) water years than during wet/above normal water years. Median TDS concentrations were similar in the mainstem San Joaquin River at Vernalis (539.5 mg/L) and Mossdale (555.0 mg/L) during critical dry years, but were significantly greater than median concentrations measured in the southwestern Delta at the Delta-Mendota Canal (324.0 mg/L), Old River near Byron (376.0 mg/L), and Delta Pumping Plant Headworks (348.0 mg/L) during the same time period. Median TDS concentration was lowest in the south central Delta in Middle River at Borden Hwy (256.0 mg/L). During wet/above normal water years, median TDS concentrations in the mainstem San Joaquin River and the southwestern and south central Delta were much closer in magnitude than those described in the above comparison. With the exception of the Mossdale site, where median TDS was 242.0 mg/L, the five other DWR-MWQI sites showed median TDS levels ranging from 152.0 mg/L in Middle River to 197.0 mg/L in Old River near Byron (see Appendix F). As observed during the critical dry year comparison, median TDS concentration was lowest at the Middle River site during wet/above normal water years. No water quality criterion currently exists for TDS, although electrical conductivity is commonly used as a surrogate parameter upon which to evaluate salinity. A comparison of electrical conductivity to its relevant regulatory standard is provided below.

## **Total Organic Carbon and Dissolved Organic Carbon**

The process of treating surface waters for drinking water purposes generally involves mixing coagulant chemicals with the source water. This process removes some dissolved organic material and causes most of the particulates to aggregate and settle out. The

settled water is then filtered (usually through beds of special sand and anthracite mixtures), thus removing many more microbial contaminants. At one or more points in the process, oxidative disinfectant chemicals (typically chlorine or ozone) are applied for specified contact times. Finished water that flows from the treatment facility into the pipes that distribute the water to homes and businesses must additionally contain a sufficient disinfectant residual (usually chlorine or chloramine) to prevent re-growth of harmful bacteria or other organisms in the distribution system, up to the taps of customers.

An unfortunate side effect of oxidative disinfection is the formation of unwanted chemical by-products (called disinfection by-products (DBPs)), some of which could result in adverse health impacts at elevated concentrations. Trihalomethanes are a common form of DBP. Delta waters contain trihalomethane (THM) precursors, such as bromide and organic material, which are chemically transformed into trihalomethane compounds, which are suspected carcinogens. Trihalomethanes are produced when chlorine or ozone used in disinfection reacts with organic compounds present in the water. Dissolved organic compounds that originate from decayed algae and other plant material act as precursors by providing a source of carbon in THM formation reactions. When bromides (coming primarily from ocean water) occur in water along with organic THM precursors, THMs are formed that contain bromine as well as chlorine. In addition to potential adverse health impacts, DBPs may produce objectionable taste and odor (T & O) characteristics that may affect consumer acceptance of drinking water. Different oxidants and different sources of water yield different types and concentrations of disinfection by-products. Additionally, nutrient levels in waters can affect disinfection treatment indirectly by supporting the growth of algae and other organisms, which subsequently adds to the organic carbon concentrations in water. The presence of organic carbon in Delta exports (in both its total and dissolved forms) may require most purveyor of drinking water from the Delta to modify their treatment practices in order to meet the Interim Enhanced Surface Water Treatment Rule (SWTR) and total trihalomethane (TTHM) requirements. Under the Safe Drinking Water Act, disinfection is required for all drinking water taken from surface sources.

Organic carbon was measured as both total organic carbon (TOC) and dissolved organic carbon (DOC) at three of the six DWR-MWQI monitoring sites. The San Joaquin River at Mossdale Bridge, Middle River at Borden Hwy, and Delta-Mendota Canal at Lindemann Road monitoring sites possess only DOC data. Although TOC is the fraction of organic carbon that is considered for treatment plant regulatory purposes, DOC is presumably the fraction of organic carbon most readily available to participate in THM formation reactions, and is the fraction that requires more costly treatment to ensure its removal. Particulate organic carbon is removed early in the drinking water treatment process via filtration. The analysis of wet/above normal water year TOC data for the three DWR-MWQI sites where said data were collected revealed that median TOC concentration in the mainstem San Joaquin River at Vernalis (2.8 mg/L) was the same as that calculated for the Delta Pumping Plant Headworks, and both concentrations were slightly lower than that observed for the monitoring site located in Old River near Byron

(3.1 mg/l). In general, TOC levels appear to be similar in the San Joaquin River and southwestern Delta during wet/above normal water years.

DOC concentrations calculated for wet/above normal water years exhibited a similar pattern as that described for TOC. Median DOC concentration in the mainstem San Joaquin River at Mossdale (3.2 mg/L) was identical to that calculated for both Middle River at Borden Hwy and Delta-Mendota Canal during the period January 1995 – September 1997. The Delta Pumping Plant Headworks exhibited a slightly lower median DOC concentration (3.0 mg/L) during a similar time period (January 1995 – July 1997). Although offset later in time (November 1997 – June 1999), wet/above normal year median DOC concentrations calculated for the mainstem San Joaquin River near Vernalis (2.8 mg/l) and Old River near Byron (3.2 mg/L) were similar to those estimated for the other four monitoring sites. A comparison of median DOC concentrations for data collected during critical water years also showed little difference between levels found in the mainstem San Joaquin River (3.4 mg/L at Vernalis; 3.3 mg/L at Mossdale) and the three municipal water intakes located in the southwestern Delta (3.5 mg/L at Delta Pumping Plant Headworks; 3.7 mg/L at Delta-Mendota Canal; 3.4 mg/L at Old River near Byron). Middle River at Borden Hwy exhibited a slightly higher median DOC concentration of 3.9 mg/L. As was observed for TDS, median DOC concentrations were greater at all sites during critical dry water years than during wet/above normal water years (see Appendix 1T).

The Central Valley Regional Water Quality Control Board has not adopted water quality objectives for TOC/DOC in their Basin Plan. As such, no findings have been made that ambient organic carbon concentrations in the Sacramento-San Joaquin Delta are causing or contributing to an impairment of beneficial uses in the region. However, TOC and DOC concentrations are commonly compared to the 2 mg/L and 4 mg/l treatment thresholds of the Disinfection/Disinfection Byproduct (D/DBP) Rule, which are applied at the intakes to drinking water plants. In comparing the TOC and DOC minimum detected data (see Appendix F) with the D/DBP Rule, essentially all data points at all monitoring sites exceed the 2 mg/L treatment threshold criterion, while a number of maximum data points exceed the 4 mg/l threshold.

### **Fecal Coliform**

Fecal coliform bacteria are used as an indicator of the presence of pathogens in water. Microbial pathogens pose a direct threat to public health. The primary purpose of drinking water treatment is to remove or kill pathogens. Under the 1989 Surface Water Treatment Rule (SWTR), surface water must be treated by filtration or disinfection to minimize disease risks from microbial pathogens prior to distribution for consumption. In addition, turbidity, which can inhibit disinfection efficiency, must be reduced to low levels in drinking water to ensure disinfection efficiency. Emphasis in this rule was on reducing risks from *Giardia*, *Legionella*, and viruses. The Interim Enhanced Surface Water Treatment Rule was promulgated in December 1998 and adopted more stringent turbidity removal requirements. The Long-term 2 Enhanced Surface Water Treatment

Rule (to be promulgated by May 2002) is expected to include requirements for the control of *Cryptosporidium*.

At present, levels of microbial pathogens in Delta waters do not specifically influence the degree of disinfection at water treatment facilities, since current drinking water regulations are based on uniform treatment requirements. However, future regulations may require treatment that is proportional to pathogen levels in source waters. Based on limited data, levels for pathogens in routine sampling of Delta water appear to be lower than national averages (CALFED, 2000). However, the limited data along with significant technical limitations in measuring techniques do not enable reliable conclusions to be drawn at this time. Moreover, recent sampling during storm events has indicated very high levels of total and fecal coliform in storm water runoff. Disinfection by water supply utilities using Delta water sources usually is accomplished with chlorine. An increasing number of water supply utilities are using ozone or a combination of disinfectants to kill pathogens.

The present fecal coliform analysis is limited to data collected during wet water years at the six DWR-MWQI stations. Median fecal coliform concentrations (measured as Most Probable Number (MPN) per 100 mL) decreased in the mainstem San Joaquin River when moving downstream from Vernalis (192.0 MPN/100 mL) to Mossdale (127.9 MPN/100 mL). Additionally, fecal coliform levels in the southwestern and south central Delta were considerably lower than those observed in the lower San Joaquin River. Median fecal coliform concentrations estimated for the Delta Pumping Plant Headworks (32.4 MPN/100 mL) and both Middle River and Old River near Byron (12.4 MPN/100 mL) were 3.9 and 10.3 times lower, respectively, than levels of the pathogen measured in the San Joaquin River at Mossdale. Fecal coliform levels were evaluated in comparison to the Basin Plan water quality objective of 200 MPN/100 mL (30-day median). Median fecal coliform levels remained below the Basin Plan objective at all six DWR-MWQI sites (see Appendix F). Frequency of compliance with the Basin Plan fecal coliform objective ranged from 54.5% in the San Joaquin River near Vernalis to 90.9% in Old River near Byron (see Table E-3). Very small data sets for both *Giardia* and *Cryptosporidium* exist for the San Joaquin River near Vernalis, but these data were judged to be insufficient to allow the calculation of any summary statistics for either pathogen. However, it should be noted that all *Giardia* and *Cryptosporidium* data collected at Vernalis were below the laboratory detection limits of 10 cysts/100 L used in the analysis for each pathogen.

### Dissolved Oxygen

Low dissolved oxygen (DO) concentration and the presence of oxygen-depleting substances occur in isolated areas of designated impaired water bodies in the Delta. Delta waterways and the San Joaquin River are listed on the CWA Section 303(d) list as impaired for low DO concentration (SWRCB, 1998). Oxygen-depleting substances originate from a variety of sources, but are commonly the products of decaying organic material from in-stream plants or plant matter from storm water systems. Usually, storm water-introduced plant material does not immediately affect DO, since most material is

introduced during the wet season. However, the material transported by storm flows may contribute to benthic oxygen demand. Storm water systems also discharge during the dry season due to urban irrigation and water use. Dry season discharge is at times more concentrated with respect to oxygen-depleting substances than wet season discharge. Agricultural drain water (irrigation return), animal feedlot waste, and traditional industrial wastewater also may carry oxygen-depleting substances and nutrients. Nutrients stimulate the growth of algae and other in-stream plants. When these organisms die, they degrade and exert a demand on oxygen in the stream.

Dissolved oxygen concentrations must be maintained above specified levels to protect aquatic life beneficial uses. The Central Valley Basin Plan specifies minimum levels of dissolved oxygen to be maintained in specific water bodies. With respect to the water bodies considered in the present analysis, the Basin Plan specifies that DO concentration shall not be reduced below 5 mg/L. Ambient DO concentrations are observed to fall below this 5 mg/L standard between June and November in the San Joaquin River near Stockton. DO concentrations as low as 2.5 mg/L have been measured along a 10-mile reach of the lower San Joaquin River near Stockton during the fall (CALFED, 2000). These low DO concentrations are called an "oxygen sag" and may act as a barrier to upstream migration of adult San Joaquin fall-run chinook salmon that migrate upstream to spawn in the Merced, Tuolumne, and Stanislaus rivers between September and December. Oxygen depletion in the San Joaquin River is highest in late summer and fall when high water temperature reduces the oxygen-carrying capacity of the water and increases biotic respiration rates. Low or negative stream flow past Stockton reduces dilution and mixing, which reduces re-aeration of the water.

In January 1998 the Central Valley Regional Water Quality Control Board (Regional Board) adopted a revised Section 303(d) list which identified low dissolved oxygen levels in the lower San Joaquin River ("Delta Waterways" – see Table E-1) as a high priority problem and committed to developing a waste load allocation or Total Maximum Daily Load (TMDL) by the year 2011. Low DO concentrations in the San Joaquin River in the vicinity of the City of Stockton were identified in Part II of the Bay Protection and Toxic Cleanup Program (BPTCP) as constituting a candidate BPTCP hot spot. Regional Board staff formed a Steering Committee to help guide the TMDL process. The Steering Committee is composed of representatives from the Stockton Regional Wastewater Control Facility, upstream and adjacent NPDES dischargers (including the Cities of Lathrop and Tracy), the dairy industry, irrigated agriculture, the environmental community, and State and federal resources agencies. The overall mission of the Steering Committee is to develop and implement a watershed plan and total maximum daily load that achieves the dissolved oxygen objectives of the lower San Joaquin River as established in the Basin Plan.

An analysis of dissolved oxygen data collected during critical water years revealed similar median DO concentrations for Vernalis (9.0 mg/L) and Mossdale (9.1 mg/L) that were both higher than the median concentrations calculated for the Delta-Mendota Canal (8.1 mg/L) and Old River near Byron (7.6 mg/L). Median concentrations calculated for Middle River at Borden Hwy (8.4 mg/L) and Delta Pumping Plant Headworks (8.5 mg/L)

were found to be intermediate between those estimated for the aforementioned four monitoring sites. This same general pattern of San Joaquin River median DO concentrations being greater than southwestern and south central Delta concentrations was also observed for data collected during wet water years. Although, the median DO concentration estimated for the Delta Pumping Plant Headworks (8.5 mg/L) was similar to that calculated for Vernalis (8.6 mg/L). Unlike TDS and DOC, median DO concentrations calculated for data collected during critical water years were not noticeably dissimilar from median DO concentrations calculated for data collected during wet water years. In fact, median DO concentrations calculated for Vernalis, Middle River and the Delta-Mendota Canal were higher during critical water years than during wet water years, and median DO concentrations at Mossdale remained the same during both critical and wet time periods (see Appendix F).

Monitoring data for dissolved oxygen shows total compliance with the Basin Plan dissolved oxygen objective (minimum of 5 mg/l) in the San Joaquin River upstream of the Stockton Deep Water Ship Channel. Minimum observed levels in this reach ranged from 5.5 mg/l at Vernalis (monitoring period: Jan. 1990 – Feb. 1998) to 6.9 mg/L at Mossdale (monitoring period: Jan. 1990 – Sep. 1997). Similar high compliance with the Basin Plan objective was found in the southwestern and south central Delta where compliance ranged from 98.9% in Middle River at Borden Hwy to 100% in Old River near Byron (see Table E-3). Minimum observed levels in this region of the Delta ranged from 4.6 mg/L at both Middle River and the Delta-Mendota Canal (monitoring period: Jan. 1990 – Sep. 1997) to 4.7 mg/L at the Delta Pumping Plant Headworks (monitoring period: Jan. 1990 – July 1997).

### **Electrical Conductivity (EC)**

Electrical conductivity is a measurement of the ionic activity of water and is positively correlated with total dissolved solids (TDS) concentrations in water. Salinity is typically measured as TDS in mg/L or as electrical conductivity (EC) in  $\mu\text{mhos/cm}$ . Discharges from agriculture, wetlands, mines, industries, and urban areas contribute TDS to the San Joaquin River and the Sacramento-San Joaquin Delta. As discussed previously, TDS primarily affects agricultural and drinking water beneficial uses of water. However, fish and wildlife can also be affected by locally and seasonally elevated salinity with a potential for even more sensitivity due to specific ion toxicity. Seasonal and site-specific objectives for salinity are routinely exceeded in some regions.

The salt concentrations of water in the lower San Joaquin River and south Delta frequently exceed desirable levels for agricultural beneficial uses. The Basin Plan's 700  $\mu\text{mhos/cm}$  30-day running average specific conductance (electrical conductivity normalized for a temperature of 25 °C) water quality objective for the San Joaquin River near Vernalis for the April through August period has been exceeded 54% of the time from 1986 through 1997 (CALFED, 2000). The 1000  $\mu\text{mhos/cm}$  water quality objective for the September through March period has been exceeded 13% of the time (CALFED, 2000). The EC compliance percentages stated above are somewhat less than those presently calculated for Vernalis using a data set covering January 1990 through June

1999 (see Table E-3). Differences in percent compliance are likely due to the fact that the 1986-97 data set included data from several critical water years.

The present analysis of specific conductance showed this water quality parameter to behave very similarly to TDS for both critical and wet/above normal water years. Median specific conductance values calculated for data collected during critical water years were significantly greater than values calculated for data collected during wet/above normal water years for all monitoring sites under consideration in the project area. During critical water years, median specific conductance values in the main stem San Joaquin River at Vernalis (901.5  $\mu\text{mhos/cm}$ ) and Mossdale (958.0  $\mu\text{mhos/cm}$ ) were significantly higher than median values calculated for the Delta Pumping Plant Headworks (573.0  $\mu\text{mhos/cm}$ ), Delta-Mendota Canal (639.5  $\mu\text{mhos/cm}$ ) and Old River near Byron (617.5  $\mu\text{mhos/cm}$ ). The Middle River at Borden Hwy site possessed the lowest median specific conductance value (437.0  $\mu\text{mhos/cm}$ ) of all sites considered in the present analysis. Differences in monitoring periods among the six sites for specific conductance data collected during wet/above normal water years preclude a direct comparison of values across all sites. Although, the Vernalis (322.0  $\mu\text{mhos/cm}$ ) and Old River near Byron (354.0  $\mu\text{mhos/cm}$ ) sites exhibited similar median specific conductance values during the monitoring period that extended from December 1997 to June 1999. In contrast, the Middle River (264.0  $\mu\text{mhos/cm}$ ) and Delta Pumping Plant (234.5  $\mu\text{mhos/cm}$ ) sites exhibited much lower median specific conductance levels than those estimated for the San Joaquin River at Mossdale (409.0  $\mu\text{mhos/cm}$ ) and Delta-Mendota Canal (338.0  $\mu\text{mhos/cm}$ ) sites during the period January 1995 through September 1997 (see Appendix F).

Monitoring data is collected at various locations in the Delta to assess compliance with EC objectives. Data from the present analysis indicated that the least frequent compliance with EC objectives within the project study area occurred in the San Joaquin River near Vernalis (61.4% compliance from April through August, and 89.8% compliance from September through March) and the San Joaquin near Mossdale (57.1% and 93.3%, respectively). April through August compliance with EC objectives improved within the central and southwestern Delta, with compliance ranging from 79.0% at the Delta-Mendota Canal to 100% in Middle River at Borden Hwy. All EC monitoring data examined in the present analysis showed greater compliance (often 100%) during the period September through March (EC objective = 1000  $\mu\text{mhos/cm}$ ) than the period April through August (EC objective = 700  $\mu\text{mhos/cm}$ ) (see Table E-3).

## pH

The measurement of pH indicates the concentration of hydrogen ions in solution. It expresses the intensity of an acid, depending upon its dissociation as well as the total amount present. Water is a weak electrolyte; hence, by definition a small fraction of it dissociates into the ions that compose its molecule,  $\text{H}_2\text{O}$ . In a neutral solution, the number of hydrogen ions equals the number of hydroxyl ions. At neutrality, the molar concentration of  $\text{H}^+$  is expressed as pH 7.0. Lower pH values (below 7.0) indicate greater hydrogen ion concentrations and greater-acidity, while pH values above 7.0 indicate basic

conditions. Aquatic life may begin to be adversely impacted by pH values which are less than 6.5 or greater than 8.5. In natural waters, both the photosynthesis of algae and aquatic plants, and the respiration of plants, animals and bacteria influence pH levels. Photosynthesis is a reaction that uses sunlight to convert carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O) into a simple sugar (e.g., hexose – C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>), along with the release of oxygen (O<sub>2</sub>). The respiration of aquatic organisms consumes simple sugars and O<sub>2</sub> to produce CO<sub>2</sub> and H<sub>2</sub>O. Carbon dioxide then combines with water to produce carbonic acid (H<sub>2</sub>CO<sub>3</sub>). This acid subsequently dissociates to form bicarbonate (HCO<sub>3</sub><sup>-</sup>) and hydrogen ion (H<sup>+</sup>). Despite the fact that some acidity in natural waters is derived from strong mineral acids and organic acids, the pH range in most inland waters extends from 6.0 to 9.0 and is the result of hydrogen ions contributed from carbonic acid in its various forms.

In an effort to limit the exposure of aquatic organisms to potentially harmful pH levels, the Central Valley Regional Water Quality Control Board has established a Basin Plan pH range that extends from 6.5 to 8.5 pH units. An analysis of critical water year pH data collected from DWR-MWQI and DWR-D-1485 monitoring sites revealed that median pH levels in the mainstem San Joaquin River increased slightly from Vernalis (7.9 pH units) to Mossdale (8.1 pH units). Both sites possessed identical maximum pH values of 9.5 pH units. A slight decrease in median pH values was observed at monitoring sites in the central and southwestern Delta, with concentrations at Delta-Mendota Canal and Middle River at Borden Hwy (both 7.7 pH units) being very similar to those calculated for Old River near Byron (7.6 pH units) and the Delta Pumping Plant Headworks (7.8 pH units). Observed maximum pH values were also similar for these four sites and ranged from 8.5 – 8.8 pH units (as measured at Old River near Byron and Delta-Mendota Canal, respectively). Median pH values calculated from data collected during wet/above normal water years were lower than median concentrations calculated from data collected during critical water years at all monitoring sites. Even though differences in monitoring periods among the six sites possessing pH data collected during wet/above normal water years preclude a direct comparison across all sites, median pH values exhibited a narrow range from 7.1 standard units at Old River near Byron to 7.6 standard units on the San Joaquin River at Mossdale. Maximum detected pH values were also lower at all sites during wet/above normal water years than during critical dry years. Maximum pH values ranged from 7.6 – 8.5 pH units as measured at Old River near Byron and San Joaquin River near Vernalis, respectively. In general, pH levels appear to be similar in the San Joaquin River and southwestern Delta during wet/above normal water years (see Appendix F). Compliance with the Basin Plan pH objective ranged from 89.1% (San Joaquin River at Mossdale) to 98.9% (Middle River at Borden Hwy) for the six monitoring sites considered in the present analysis (see Table E-3). The San Joaquin River near Vernalis showed the greatest range in pH values during both critical water years (6.2 – 9.5 pH units) and wet/above normal water years (6.0 – 8.5 pH units).

### Temperature

Temperature levels in ambient waters have a clear influence on the aquatic species composition of a water body. Separate beneficial uses are designated in the Basin Plan for warm water uses and cold water uses. The Lower San Joaquin and Delta waterways

are classified as supporting warm water fisheries, although efforts are underway to improve the San Joaquin River as a migration corridor for various endangered species who favor cold water conditions. Aquatic organisms differ in both their oxygen requirements and their abilities to remove oxygen from water. As temperature increases, the oxygen-holding capacity of water decreases. Temperature also plays a role in the rate at which trihalomethanes are formed, and the rate at which mercury undergoes methylation. Such reactions proceed faster as temperatures increase.

Median water temperatures calculated for data collected during critical water years showed the main stem San Joaquin River to be 1-3 °C cooler than median temperatures calculated for two municipal water intakes located in the southwestern Delta. Additionally, median temperatures in the San Joaquin River increased when moving downstream from Vernalis (17.5 °C) to Mossdale (19.5 °C), while they remained similar in the southwestern Delta at the Delta-Mendota Canal (20.7 °C) and Old River near Byron (21.0 °C). Median temperatures calculated for Middle River at Borden Hwy (19.2 °C) and the Delta Pumping Plant Headworks (19.6 °C) were similar to the value estimated for the San Joaquin River at Mossdale. Due to an offset in monitoring periods, a direct comparison of temperature data collected during wet water years could not be made across all six sites. However, the data again show median temperature increasing when moving downstream in the mainstem San Joaquin River from Vernalis (13.7 °C) to Mossdale (15.5 °C). Additionally, median water temperature at Old River near Byron (21.2 °C) was significantly higher than median values estimated for the San Joaquin River during the same time period. A comparison of temperatures among the Middle River (18.0 °C), Delta Pumping Plant (18.5 °C), and Delta-Mendota Canal (18.7 °C) sites revealed only minor differences in median values during the wet/above normal period extending from January 1995 through September 1997. Temperatures ranged from an observed minimum of 3.1 °C to an observed maximum of 30.0 °C on the San Joaquin River at Mossdale during the critical dry water year period January 1990 through December 1992. Median temperatures appeared to be generally higher during critical water years than during wet water years (see Appendix F). Specific numeric Basin Plan objectives have not been adopted for temperature in the San Joaquin River or the Sacramento-San Joaquin Delta.

## Nutrients

Nitrogen and phosphorus are essential for growth of plants and animals. For this reason these elements are often identified as nutrients, or biostimulants, when discharged to surface waters. Nutrients are easily recognized impurities of receiving waters because their addition to natural waters results in increased eutrophication rates. Natural waters may be classified, according to their ability to support life, as oligotrophic, mesotrophic, or eutrophic. Eutrophic waters characteristically have increased nutrient levels, possess low species diversity, and support high algal biomass. The process of moving from oligotrophic (characterized by low nutrient concentrations and low species abundance and diversity) through mesotrophic (characterized by moderate nutrient levels and an abundance and diversity of species at all trophic levels) to eutrophic is called eutrophication. Nitrogen as  $\text{NH}_4^+$  and  $\text{NO}_3^-$  and orthophosphate ( $\text{PO}_4^{3-}$ ) are the most

common biostimulants, but any growth-limiting nutrient can act in this manner. In nutrient-limited environments, the addition of the limiting nutrient to a water body through natural or anthropogenic activities can lead to algal blooms and enhanced growth of aquatic macrophytes.

Chronic and catastrophic discharges of nutrients into Central Valley and Bay-Delta waterways contribute to problems such as elevated ammonia, algal blooms, and low dissolved oxygen. In terms of drinking water quality, nutrients may contribute to excess growth of algae in storage reservoirs and in aqueducts, which can result in elevated treatment costs due to the need for additional filtration for removal of unpleasant odors and flavors. Nutrient loadings largely result from: erosion; agricultural runoff, including livestock operations; urban stormwater runoff; and wastewater treatment plant discharges. In December 2000, EPA published 17 ecoregional nutrient criteria documents that promulgate recommended criteria for both causative (nitrogen and phosphorus) and response (chlorophyll *a* and turbidity) variables associated with the prevention and assessment of eutrophic conditions. EPA has identified 14 ecoregions in the continental United States, three of which are represented in California: Ecoregion I (Willamette and Central Valleys), Ecoregion II (Western Forested Mountains), and Ecoregion III (Xeric West). EPA has yet to adopt nutrient criteria guidance for the Central Valley (Ecoregion I) for rivers and streams or estuarine and coastal waters. Additional studies are needed to more fully understand the sources and loadings of nutrients in the Bay-Delta system. Also needed is increased understanding of the relationship between nutrient concentrations and loads in the Delta watershed, and the occurrence of beneficial productivity versus excessive algae and macrophyte growth in water conveyance and storage facilities containing Delta water supplies (CALFED, 2000).

Nitrogen is a complex element that can exist in seven states of oxidation. From a water quality standpoint, the nitrogen-containing compounds that are of most interest are: organic nitrogen (including urea,  $[\text{CO}(\text{NH})_2]_2$ ), ammonia ( $\text{NH}_3$ ), nitrite ( $\text{NO}_2^-$ ), nitrate ( $\text{NO}_3^-$ ), and nitrogen gas ( $\text{N}_2$ ). The distribution of ammonia in fresh waters is highly variable regionally, seasonally, and spatially within rivers and lakes and depends upon the level of productivity of the water body, and the extent of inputs from organic matter. Ammonia is generated by heterotrophic bacteria as a primary end product of decomposition of organic matter, either directly from proteins or from other nitrogenous organic compounds in the water column or the sediment. Intermediate nitrogen compounds are formed during the degradation of organic material, but rarely accumulate, because deamination by bacteria proceeds rapidly. Although ammonia is a major excretory product of aquatic animals, this nitrogen source is quantitatively minor in comparison to that generated by bacterial decomposition. The lower San Joaquin River receives inputs of nitrogenous compounds from a variety of sources including confined animal facilities (dairies, poultry and livestock feed lots), fertilizer manufacturers and users, and wastewater treatment facilities.

Ammonia in water is present primarily as  $\text{NH}_4^+$ , and as undissociated  $\text{NH}_4\text{OH}$ , the latter being toxic to many organisms, especially fish and invertebrates. The proportions of

$\text{NH}_4^+$  and  $\text{NH}_4\text{OH}$  are dependent upon the dissociation dynamics that are governed by pH and temperature. At high concentrations for a relatively short duration (hours), ammonia may be acutely toxic (cause adverse effects to organisms in short periods of time). Lower concentrations may also cause chronic (long-term) effects if the period of exposure is sufficiently long (weeks or months). Ammonia toxicity is exponentially related to pH, with the unionized ammonia fraction increasing significantly at higher pH levels. For example, the approximate ratios of  $\text{NH}_4^+$  to  $\text{NH}_4\text{OH}$  are 3000:1 at pH 6, 300:1 at pH 7, and 30:1 at pH 8.

In contrast to the numerous forms of nitrogen present in surface waters, the most significant form of inorganic phosphorus is orthophosphate ( $\text{PO}_4^{3-}$ ). However, the inorganic fraction of phosphorus in fresh water is small compared to the organic fraction, which constitutes greater than 90 percent of the total phosphorus typically measured in fresh water systems. Since inorganic and organic phosphorus fractions are metabolized differently by different biota, the total phosphorus content of unfiltered water, which consists of phosphorus in particulate and dissolved phases, is typically the most useful measurement used in evaluating phosphorus loading. Phosphorus, like nitrogen, is of importance in water supply systems and in the aquatic environment. Phosphorus compounds are used for corrosion control in water supply and industrial cooling water systems, and in the production of synthetic detergents. As a consequence, the concentration of phosphorus in treated municipal wastewaters has increased in response to the increased use of household detergents during the later half of the 20<sup>th</sup> Century.

Data collected during wet water years at all six monitoring sites considered in the current analysis indicated that typical ammonia concentrations were below the levels that would cause either acute or chronic toxicity, based on paired analyses of co-occurring ammonia and pH levels measured at the various monitoring sites. The Delta Pumping Plant Headworks possessed the highest median dissolved ammonia level (0.09 mg/L), while the San Joaquin River near Vernalis showed the highest detected ammonia value (1.4 mg/L) among all sites evaluated. A site-by-site, pair-wise evaluation of ammonia and pH data collected at each of the six monitoring sites revealed no occurrences of ammonia toxicity as defined by the current EPA water quality criterion for ammonia (EPA, 1999). In addition, analysis of toxicity data collected by the Regional Board did not demonstrate toxicity in the Delta due to unionized ammonia (Brown, 1997). Bioassay testing with organisms sensitive to ammonia (fathead minnows) was used to support this finding. Ammonia is also a concern in the system due to the oxygen demand created by bacteria that breakdown ammonia to nitrate in natural waters, a process known as nitrification.

Additional nutrient data in the forms of total nitrogen (calculated as the sum of total Kjeldhal nitrogen, nitrite and nitrate) and total phosphorus were available for the San Joaquin River near Vernalis from the USGS NAWQA Program. These data were collected from April 1992 – March 1995, a period that covered both critical (1992 and 1994) and wet (1993 and 1995) water year types. Median total nitrogen was calculated as 2.20 mg/L, with a 90<sup>th</sup> percentile value of 3.43 mg/L and a detected maximum value of 4.00 mg/L. Median total phosphorus was calculated as 0.2 mg/L, with a 90<sup>th</sup> percentile value of 0.41 mg/L and a detected maximum value of 0.75 mg/L (see Appendix F). As

stated above, no adopted nutrient criteria exist for these two parameters in the Central Valley (Ecoregion I).

### Trace Elements

Trace elements (metals and minerals) may impact aquatic organisms directly or may impact human health or wildlife through drinking water consumption or through bioaccumulation in fish or shellfish consumed by humans or high end predators. Heavy-metal loading in the watershed has been evaluated as a possible source of aquatic toxicity throughout the Bay-Delta and its tributaries. Studies of abandoned mines in the upper Sacramento River watershed have shown toxic effects on aquatic species, although similar effects have not been observed in the Delta. Other sources contribute to total metal loading in the Bay-Delta, including municipal discharges (treated effluent and urban runoff), agricultural runoff, geothermal sources, sediment contributions, and others. Aquatic toxicity of metals is influenced by the hardness of ambient waters, with less toxicity potential existing at higher hardness values. At present, insufficient information exists to determine the ecological impacts or spatial and temporal extent of metals contamination in the Bay-Delta. Trace metals in the Delta are regulated in the Basin Plan and under the California Toxics Rule (CTR), adopted in May 2000 (EPA, 2000).

A trace metal of particular concern in the Sacramento-San Joaquin Delta and its tributaries is mercury. Between 1850 and 1880 about 90 percent of the mercury produced in the United States was mined in the Coast Range of California. A significant quantity of this mercury was transported across the Central Valley and a portion was lost in Sierra Nevada placer gold mining activities. Runoff from abandoned mines, geothermal sources and atmospheric deposition add to the mercury inputs to the system. As a result, widespread contamination has occurred in mountain waterways and downstream in valley rivers and the Bay-Delta. Mercury is Section 303(d)-listed for the Delta due to levels of concern in tissues of specific fish species. Mercury poses a potential health concern to consumers of fish (humans and upper trophic level wildlife). An interim health advisory has been posted in the Bay-Delta recommending limited consumption of striped bass and sharks because of elevated concentrations of mercury and PCBs (SFBRWQCB, 1995a). More recent sampling has demonstrated concentrations of concern in several other species of piscivorous sportfish (largemouth bass and white catfish) in Cache Creek and the Bay-Delta, suggesting that mercury contamination is more widespread than previously thought and that additional advisories may be warranted. The State is currently developing a Total Maximum Daily Load (TMDL) program for mercury in the Delta (to be completed by the Year 2003) that will result in the identification of regulatory target(s), determination of sources and their associated loads, development of a quantitative model to predict loading, and implementation of a mercury control program to achieve load reductions.

Selenium is a widely distributed semi-metallic trace element that is naturally abundant in the marine shale sedimentary rocks and soils weathered from the rocks of the Coast Ranges west of the San Joaquin Valley. The natural source of selenium in the Sacramento-San Joaquin Delta region is erosion of the nearby mountain soils, followed

by deposition of sediment in the Central Valley, forming the parent material for valley soils. Periodic natural flood events, soil excavation, and agricultural irrigation accelerate mobilization and transport of selenium into the aquatic ecosystem. Selenium can be highly toxic to aquatic life at relatively low concentrations, but is also an essential trace element for many aquatic and terrestrial species. Selenium can undergo biotransformation between inorganic and organic forms, each possessing its own level of toxicity. The biotransformation of selenium can significantly alter its bioavailability and toxicity to aquatic organisms. Selenium also has been shown to bioaccumulate in aquatic food webs, which highlights dietary exposures to selenium as a significant exposure pathway for aquatic organisms.

Toxicity of trace elements, specifically metals, is related to the hardness (typically measured as mg/L of CaCO<sub>3</sub>) of the ambient water in which the metals are detected. As water hardness increases, the potential for metals toxicity decreases. This relationship is taken into account by the California Toxics Rule and its hardness-based criteria for various metals, including cadmium, chromium (III), copper, lead, nickel, silver, and zinc. Minimum detected hardness values in the main stem San Joaquin River ranged from 32 mg/L at Vernalis to 36 mg/L at Mossdale. Minimum hardness values in the southwestern and central Delta were slightly higher, with a range of 36 – 42 mg/L (as measured at Old River near Byron and Middle River at Borden Hwy, respectively). Tenth percentile hardness values among all six monitoring sites ranged from 52.1 mg/L (San Joaquin River at Mossdale) to 66.8 mg/L (Delta-Mendota Canal intake). Delta monitoring sites showed lower median hardness values (range: 88 – 110 mg/L, calculated for Middle River and Delta-Mendota Canal, respectively) than those calculated for the main stem San Joaquin River at Vernalis (128.5 mg/L) and Mossdale (152.0 mg/L). Additional summary statistics for surface water hardness are presented in Appendix F.

Data for most other trace elements are lacking in the Sacramento-San Joaquin Delta. With respect to the present analysis, limited data for copper indicates 98% compliance for the metal in the San Joaquin River at Vernalis, the only site with usable data. A single CTR criterion exceedance was observed at Vernalis due to a dissolved copper measurement of 8.0 µg/L with an accompanying hardness value of 52.0 mg/L as CaCO<sub>3</sub> (at this hardness value, the CTR dissolved copper limit is 5.1 µg/L, times a Water Effect Ratio (EPA, 2000)). While dissolved boron data were collected at all DWR-MWQI sites, no assessment of regulatory compliance can be made for boron because the Basin Plan specifies a criterion only for total boron. Similarly, dissolved selenium data were collected at the Vernalis, Mossdale, and Delta-Mendota Canal sites, but total selenium is the fraction of the metal regulated by both the Basin Plan and the California Toxics Rule, and therefore no estimates of regulatory compliance can be made for this constituent.

### Trace Organics

Trace organics include pesticides, DDT, PCBs, dioxins, and others. Trace organics are of potential concern due to aquatic toxicity, bioaccumulation and human health effects. The Delta waterways are Section 303(d)-listed for several trace organics, including the organophosphate pesticides diazinon and chlorpyrifos, DDT, and Group-A chlorinated

pesticides<sup>1</sup>. Diazinon and chlorpyrifos are listed due to concerns regarding periodic aquatic toxicity to invertebrates, an occurrence that could potentially disrupt the food chain at a given severity (magnitude and duration). DDT and Group-A pesticides have been observed in fish tissue at levels of potential concern to humans and fish-eating wildlife. The Stockton Ship Channel is listed for dioxin, furans and PCBs. This listing is based on observed levels of these trace organics in fish tissue. Studies by the Central Valley Regional Board and USGS have documented levels of pesticides in various locations throughout the Delta. Limited data exists on levels of most other trace organics in the water column.

### Existing Wastewater Treatment and Disposal

As described in the Project Description (CH2M Hill, 2001), the City of Tracy provides wastewater collection, treatment, and disposal for residences, businesses and industries within its service area (the City's urban services boundary is shown in Section 3 of the EIR). Current permitted flow is 9.0 mgd ADWF. An average of approximately 6.0 mgd of domestic wastewater is currently generated within the service area. Additionally, Leprino Foods is currently the only significant wet industry discharging in the City and currently discharges on the order of 0.5 mgd of food process water to the plant. At the Tracy WWTP, the domestic wastewater from the City and wastewater from Leprino is sent through a series of sequential treatment processes to achieve the desired effluent quality, which is currently a secondary level of treatment.

The purpose of the primary treatment is to remove large objects, grit, and easily settleable solids. The process consists of mechanical and manually operated bar screens to remove debris and large objects in the wastewater and is followed by an aerated grit chamber that captures sand and grit materials, which would otherwise damage downstream pumps. Readily settleable materials are removed at the primary clarifiers. Screenings and grit are hauled offsite to land disposal. After primary clarification, primary effluent is conveyed to secondary treatment, which oxidizes organic material within the wastewater. The WWTP utilizes an activated biological filter (ABF) and an activated sludge system. In this process, microorganisms reduce the organic concentration of the wastewater by converting the organic material to additional microbial biomass. Once the organic concentration is reduced, the biomass is settled out of the wastewater in secondary clarifiers.

After secondary clarification, wastewater is disinfected using chlorine, followed by dechlorination with sulfur dioxide (SO<sub>2</sub>) to remove residual chlorine concentrations. The treated effluent is then pumped 3.5 miles north of the WWTP and discharged through a submerged pipeline and diffuser into the Old River above its confluence with Paradise Cut. In addition, the plant maintains an emergency storage pond with a 24 million gallon (MG) capacity for emergency flow diversions. Solids collected from primary and secondary clarifiers are thickened and digested. The solids are first thickened using dissolved air flotation thickeners and then digested in anaerobic digesters. As a final

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<sup>1</sup> Group-A pesticides include the following constituents: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene.

step, the digested biosolids are transported to drying beds for dewatering. When the solids have been sufficiently dewatered, they are transported off-site for beneficial reuse and application as soil amendments.

The City plans to increase the level of treatment in the plant expansion by the addition of filtration and nitrification unit processes. *Refer to Section 3 of the EIR for more information regarding projected treatment plant improvements.*

### **Regulatory Setting**

Both State and federal regulatory authority exists for the control of water quality in surface waters of California, including the San Joaquin River and the Sacramento-San Joaquin Delta. Key elements of the State and federal regulatory processes are described in this section. The basic approach used in both State and federal processes is to: (1) designate beneficial uses to be protected, (2) set water quality objectives that are protective of the most sensitive uses, and (3) control municipal, industrial, and other sources to meet these objectives. Municipal and industrial discharges to waters of the United States are controlled through effluent limits contained in waste discharge permits.

### **Federal Laws and Regulations**

The United States Environmental Protection Agency (EPA) is the federal agency responsible for water quality management. The EPA is headquartered in Washington D.C. and includes ten regional offices. EPA Region IX, with offices in San Francisco, is responsible for water quality management in California, Nevada, Arizona, Hawaii and the Pacific territories.

#### **Clean Water Act**

The Clean Water Act ("the Act", 33 U.S.C. § 1251 et seq.) is the federal law that governs and authorizes water quality control activities by EPA. Congress originally passed the Clean Water Act in 1972 as PL 92-500. The Act was last re-authorized and substantially amended in 1987. Pursuant to federal law, EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (40 CFR).

Section 303 of the Act requires States to adopt water quality standards for all surface waters of the U.S. As defined by the Act, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question, and (2) criteria that protect the designated uses. Section 304(a) requires the EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria may be employed where numerical standards cannot be established or where they are needed to supplement numeric standards.

The Act requires that States review and modify water quality standards every three years. In reviewing the standards on water quality limited segments (water bodies in which standards cannot be attained even with the application of technology-based controls as specified in the Act), States are required to perform a use attainability analysis if they wish to remove a designated use, adopt subcategories of uses which require less stringent criteria than are currently adopted, or designate a use that does not reflect the "fishable/swimmable" goals of the Act. In no case may States downgrade an existing beneficial use. Additionally, States are encouraged to adopt site-specific standards where local conditions warrant a change from statewide or national standards.

Section 303(c)(2)(b) of the Clean Water Act, which was added in the 1987 revisions, requires States to adopt numerical water quality standards for toxic pollutants for which EPA has published water quality criteria and which reasonably could be expected to interfere with designated uses in a water body. The deadline for adoption of such numerical standards by States was February 1990. States that did not comply with this deadline were notified by the EPA that it would promulgate standards if the State failed to do so.

#### National Toxics Rule and California Toxics Rule

On December 22, 1992, EPA promulgated the National Toxics Rule (NTR) under the Clean Water Act to establish numeric criteria for priority toxic pollutants for California and 13 other States that were not in complete compliance with Section 303(c)(2)(b) of the Act (EPA, 1995). For California, the National Toxics Rule established water quality standards for 42 pollutants for which 304(a) water quality criteria exist, but which were not covered under California's statewide water quality regulations. As a result of the court-ordered revocation of California's statewide water quality control plans in September 1994 (see State Regulatory Framework/Statewide Water Quality Control Plans, below), EPA Region IX initiated efforts to promulgate additional federal water quality standards for California. In May 2000, EPA issued the California Toxics Rule (CTR) that includes all the priority pollutants for which EPA has issued 304(a) numeric criteria which not already included in the December 1992 National Toxics Rule (EPA, 2000). The Section 304(a) numeric criteria are those Clean Water Act advisory criteria, established as safe levels by the EPA on a pollutant by pollutant basis, intended to be considered in setting standards to safeguard the chemical, physical, and biological integrity of a water body.

#### NPDES Permit Program

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the Clean Water Act of 1972 to regulate municipal and industrial discharges to surface waters of the U.S. The discharge of wastewater to surface waters is prohibited unless an NPDES permit has been issued which allows that discharge. Each NPDES permit contains effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge, prohibitions on discharges not specifically allowed under the permit, and provisions which describe

required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

### *Pretreatment Requirements*

Under the Clean Water Act, EPA was required to establish pretreatment standards<sup>2</sup> to prevent the discharge into a Publicly Owned Treatment Works (POTW) of any pollutant that would interfere with, pass through untreated, or otherwise be incompatible with such treatment works (33 U.S.C. § 1317(b); 40 C.F.R. § 401.12(f)). To control the pollutants covered by general and specific regulatory prohibitions, each POTW over 5 mgd is required to develop and enforce specific local limits for discharges to the POTW. These local limits are then deemed to be Pretreatment Standards for the purposes of the Act. Local limits are used and enforced to ensure that the POTW can meet its NPDES permit requirements and water quality-based effluent limitations. The development and implementation of local limits by POTWs is a federal requirement under the General Pretreatment Regulations of the Clean Water Act (40 C.F.R. § 403). EPA is responsible for enforcing the National Pretreatment Program at the federal level. At the State level in California, Pretreatment Program enforcement is the responsibility of the California Regional Water Quality Control Boards.

### *Antidegradation Policy*

The federal antidegradation policy has been in existence since 1968. The policy was added to the EPA water quality standards regulations in 1975 and included in the current water quality standards regulations in November, 1983 (40 C.F.R. § 131.12). The federal antidegradation policy is designed to protect and maintain existing uses and water quality, and to provide protection for higher quality waters and national water resources. The federal antidegradation policy directs States to develop and adopt a statewide policy that includes the following primary provisions: (1) existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than the quality necessary to support fishable and swimmable conditions, that quality shall be maintained and protected unless the State finds that allowing lower water quality is necessary to accommodate important local economic or social development; and (3) where high quality waters constitute an outstanding national resource, such as waters of national and State parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

### *Section 303(D) Impaired Waters List*

Under Section 303(d) of the Clean Water Act, States are required to develop lists of water bodies that will not attain water quality objectives after implementation of required levels

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<sup>2</sup> EPA regulations define "pretreatment" as a reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. This reduction may be obtained by physical, chemical, or biological processes. 40 C.F.R. § 403.3(q).

of treatment by point source dischargers (municipalities and industries). The most recent Section 303(d) list in California was issued in 1998 (SWRCB, 1998) and was approved by USEPA in May, 1999. Sacramento-San Joaquin Delta waterways and the San Joaquin River are listed for a number of pollutants as previously listed in Table 1T.

Section 303(d) requires that the State develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL prepared by the State must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. USEPA must either approve a TMDL prepared by the State or must disapprove the State's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the load allocation prescribed in the TMDL. Currently, the Central Valley Regional Water Quality Control Board has initiated work on a TMDL to address low dissolved oxygen levels in the Stockton Deep Water Channel. A stakeholder process is being employed to address technical, social and economic issues. TMDLs for other listed pollutants are scheduled to be developed over the next 13 years in accordance with the priorities contained in the 1998 Section 303(d) list (SWRCB, 1998).

#### National Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (SDWA, Public Law 93-523) passed in 1974, the U.S. EPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. EPA regulates these types of contaminants through the development of national primary and secondary Maximum Contaminant Levels (MCLs) for finished water. MCLs and the process for setting these standards were to be reviewed triennially. Amendments to the SDWA in 1986 and 1996 revised the schedules for EPA to develop certain drinking water MCLs and extended the review period to a 6-year cycle.

#### *Disinfection/Disinfection By-Product Rules (D/DBPR)*

In the 1996 SDWA Amendments, Congress directed EPA to finalize the Stage 1 D/DBPR by the end of 1998 to lower the current maximum contaminant levels for total trihalomethanes (chloroform, bromodichloromethane, chlorodibromomethane, and bromoform) of 100  $\mu\text{g/L}$  to 80  $\mu\text{g/L}$  and to establish new MCLs for haloacetic acids (60  $\mu\text{g/L}$ ) and bromate (10  $\mu\text{g/L}$ ). This EPA action also established an action level for TOC concentrations (a DBP precursor) in drinking water treatment plant source water that will require enhanced coagulation and/or other treatment steps to minimize DBPs in the disinfected water. These requirements limit (to varying degrees) the ability of water utilities to select treatment options and operational techniques.

As required by the SDWA Amendments of 1996, EPA is currently conducting research and negotiations with water utility stakeholders to develop by May 2002 the Stage 2 D/DBPR. This rule will emphasize compliance with DBP MCLs throughout the water

distribution system that may result in the need for some utilities to change treatment and disinfection technologies. However, water utilities are given a grace period to modify operations, and/or construct new facilities, to comply with the new rules. EPA has historically given small systems (service populations less than 10,000) additional time to comply, as well as technical assistance with new rules.

### *Surface Water Treatment Rules*

In the 1996 SDWA Amendments, Congress established a priority for EPA to develop an Enhanced Surface Water Treatment Rule (ESWTR) to update the December 1990 SWTR. The 1990 SWTR required all surface water treatment systems to remove (or inactivate) 99.9% of *Giardia* and 99.99% of viruses through improved treatment and disinfection. The interim ESWTR finalized in December 1998 increases the requirements for source water pathogen removal by municipal drinking water treatment systems serving populations over 10,000. The rule established more stringent requirements for filter performance and turbidity removal including removal of up to 99.9999% of both *Giardia* and *Cryptosporidium*.

The proposed Long-term 1 ESWTR, scheduled to be finalized in 2001, will extend to water utilities serving less than 10,000 population the basic requirements of the interim ESWTR. In accordance with the 1996 SDWA Amendments, EPA is now developing the Long-term 2 ESWTR for promulgation in mid-2002 that is expected to require increased removals of pathogenic organisms including *Giardia* and *Cryptosporidium* depending on the level of these organisms detected during required monitoring of the source water.

### Coastal Zone Management Act

The Coastal Zone Management Act (CZMA, 16 U.S.C. § 1451 et seq.) regulates land and water uses that may significantly affect the quality of coastal waters and habitats. The Act also requires the implementation of management measures for non-point sources of pollution to restore and protect coastal waters.

The 1990 amendments to the CZMA allow the definition of "coastal zone" to extend inland "to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters". This definition, when taken literally, may extend to all stretches of waterways that are tributary to coastal waters, including the Sacramento-San Joaquin Delta.

The CZMA requires federal, State, and local action. At the federal level, EPA and the National Oceanic and Atmospheric Administration (NOAA) are required to specify management measures to prevent water quality impacts from urban development, agriculture, forestry, and other land uses. At the State level, the SWRCB, in conjunction with the California Coastal Commission, is required to develop a coastal non-point source pollution control program. Furthermore, local governments are directed to implement non-point source pollution control and management measures whenever land use decisions are made. Watershed protection plans developed at the local level and

implemented with the coordinated support of federal, State, and regional agencies may satisfy compliance with the CZMA.

### Endangered Species Act

The Endangered Species Act (ESA, 16 U.S.C. § 11001 et seq.) protects species of fish, wildlife, and plants that are in danger of, or threatened with extinction. The listing and proposed listing of various fish species that inhabit the San Joaquin River and Delta as either "threatened", "endangered", or species of special concern may affect discharges into waters found within the critical habitat of these species. Critical habitat includes areas containing biological and physical features essential to the conservation of the designated species. The U.S. Fish and Wildlife Service (USFWS) must be consulted before actions are taken which may adversely affect endangered species or critical habitat.

### **State Laws and Regulations**

In California, the State Water Resources Control Board (SWRCB) has broad authority over water quality control issues for the State. The SWRCB consists of a full time five-member board appointed by the Governor. The lead staff position is the Executive Officer, who directs divisions responsible for water quality, legal, water rights, loans and grants, public affairs, and administration. The SWRCB is responsible for statewide water quality policy development and exercises the powers delegated to the State by the federal government under the Clean Water Act.

Regional authority for planning, permitting, and enforcement is delegated to the nine Regional Water Quality Control Boards (RWQCB). Each of the nine Regional Boards consists of nine members appointed by the Governor. The Regional Boards are required to formulate and adopt water quality control plans for all areas within the region. Regional Boards are required to establish water quality objectives in the water quality control plans. The RWQCB responsible for the San Joaquin River and the Sacramento-San Joaquin Delta is the Central Valley Regional Board (Region 5), headquartered in Sacramento.

Other State agencies with jurisdiction or involvement in water quality regulation in California include the Department of Health Services (drinking water regulations), the Department of Pesticide Regulation, the Department of Fish and Game, and the Office of Environmental Health and Hazard Assessment.

### Porter-Cologne Act

The Porter-Cologne Water Quality Control Act (Act) is California's statutory authority for the protection of water quality (California Water Code § 13000 *et seq.*). Under the Act, the State must adopt water quality policies, plans, and objectives that will provide protection to the State's waters for the use and enjoyment of the people of California. The Act sets forth the obligations of the Boards pertaining to the adoption of water

quality control plans (Basin Plans) and establishment of water quality objectives, and authorizes the SWRCB and RWQCBs to issue and enforce permits containing waste discharge requirements. Basin Plans are the regional water quality control plans required by both the Clean Water Act and the Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California.

The Porter-Cologne Act states that the quality of all waters of California shall be protected and that the activities and factors which may affect water quality shall be regulated to attain the highest water quality which is reasonable, considering all demands on those waters and "the total values involved, beneficial and detrimental, economic and social, tangible and intangible." Sections 13170 and 13240 to 13244 of the Act set forth the obligations of the State and Regional Boards pertaining to the adoption of water quality control plans (Basin Plans). Section 13240 requires that each regional board formulate water quality control plans for all areas within the region. Section 13241 specifically addresses the requirements for setting water quality objectives in these water quality control plans and requires the establishment of objectives that ensure the reasonable protection of beneficial uses and the prevention of nuisance. It is acknowledged in this section that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Section 13170 allows the SWRCB to adopt statewide water quality control plans for waters for which water quality standards are required by federal law. Section 13170 requires that such plans adhere to the requirements of Sections 13240 through 13244.

#### Statewide Water-Quality Control Plans (WQCPs)

##### *Toxic Pollutants (Inland Surface Waters and Enclosed Bays and Estuaries Plan)*

In April 1991, the SWRCB adopted two statewide water quality control plans (the Inland Surface Waters Plan (ISWP) and the Enclosed Bays and Estuaries Plan (EBEP)) which included narrative and numerical objectives for allowable concentrations of toxic pollutants in the State's receiving waters. In September, 1994, as a result of a Sacramento Superior Court decision which ruled the plans invalid, the SWRCB withdrew the plans.

The SWRCB adopted its Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California on March 2, 2000. This State Implementation Policy (SIP) was approved by the Office of Administrative Law (OAL) on May 22, 2000, and was submitted to EPA Region IX for review and approval. Meanwhile, it is in effect under State law and is being implemented by the Regional Water Quality Control Boards. The SIP outlines NPDES permitting procedures for meeting toxic pollutant objectives adopted in Basin Plans, the National Toxics Rule, and the California Toxics Rule. The SIP contains procedures for determining which pollutants must have effluent limits and the magnitude of those limits, the establishment of mixing zones, the control of chronic toxicity, and the establishment site-specific water quality objectives.

### *Temperature (Thermal Plan)*

The Thermal Plan was adopted by the SWRCB in January 1971, revised in June 1972, and is currently under review by the SWRCB. The Plan restricts discharges of thermal waste or elevated temperature waste to waters of the State. As it applies to the proposed Tracy discharge through a submerged high-rate diffuser, the Thermal Plan prohibits elevated temperature waste discharges which would increase ambient temperatures by more than 1 degree Fahrenheit (°F) over more than 25 percent of the stream cross section, and elevated temperature waste discharges that increase surface water temperatures by more than 4 °F in any location. The Thermal Plan also requires that the differential temperature between the discharge and ambient waters not exceed 25 degrees F.

### *WQCP for the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (Bay-Delta Plan)*

The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary was adopted by the State Board in 1991 (SWRCB, 1991). The Bay-Delta Plan establishes regulations and water quality control measures intended to protect beneficial uses in the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (the Bay-Delta). The Plan is reviewed every three years and a final revised Plan was released in May 1995 (SWRCB, 1995).

The 1995 Bay-Delta Plan contains water quality objectives for the protection of agriculture, municipal and industrial beneficial uses that are essentially unchanged from objectives included in the Plan adopted in 1991. The 1995 Plan also proposes new objectives for the protection of fish and wildlife beneficial uses. Water quality objectives contained in the Plan are an attempt to provide balanced protection for the beneficial uses of the Bay-Delta Estuary. The objectives are designed to incorporate seasonal and climatic variation in water needs and water availability, and also consider regional differences in water needs. Maximum mean daily chloride limits of 150 mg/L for a minimum of 155 to 250 days of the year were developed to protect municipal and industrial uses. Electrical conductivity limits developed to protect agriculture uses range from 540  $\mu\text{mhos/cm}$  to 2780  $\mu\text{mhos/cm}$ , and vary by season and Delta region.

Fish and wildlife uses are protected by a combination of narrative and numerical water quality objectives, including dissolved oxygen, electrical conductivity, Delta Outflow Index, flows in the Sacramento River and San Joaquin River, water export limitations, and Delta Cross Channel gate operation. The draft Plan states that the new objectives (with the exception of dissolved oxygen and salinity objectives) for the protection of fish and wildlife uses are based on a "subjective determination of the reasonable needs of all the consumptive and non-consumptive demands on the waters of the Estuary." Many of these objectives are adjusted for specific regions and types of hydrologic year (wet, above normal, below normal, dry, or critical). Narrative limits specify that conditions must be provided to allow production of chinook salmon at double the average production of 1967 through 1991. Narrative objectives to protect brackish marsh habitats specifically

prohibit water quality conditions that cause (a) loss of species diversity, (b) conversion to salt marsh, (c) decreased abundance of animal species sensitive to increases in salinity, and (d) significant reduction in stature or percent coverage due to changes in water or soil salinity.

*WQCP for the Sacramento-San Joaquin River Basins (Basin Plan)*

The Sacramento-San Joaquin Basin Plan, adopted by the CVRWQCB on September 1, 1998, provides water quality objectives and standards for waters of the Sacramento River and San Joaquin River basins (CVRWQCB, 1998). The Basin Plan contains specific, numeric, water quality objectives for several toxic pollutants; the federal standards adopted in the CTR supercede those toxic pollutant objectives in the Basin Plan that pertain to the San Joaquin River and Delta waters. In addition, the Basin Plan and the Water Quality Control Plan for the Delta (SWRCB, 1995) contain specific numeric standards for Delta inflow and outflow, chloride (Cl), and electrical conductivity (EC).

The San Francisco Bay Region Basin Plan was last amended in June 1995 (SFBRWQCB, 1995b). This Basin Plan establishes beneficial uses, water quality objectives and policies for the waters of San Francisco Bay. Actions in the Central Valley must not result in violations of water quality objectives in San Francisco Bay.

*Nondegradation Policy*

In 1968 the SWRCB adopted the nondegradation policy (SWRCB Resolution 68-16), a policy aimed at maintaining high quality waters in California. The nondegradation policy states that the disposal of wastes into the waters of the State shall be regulated so as to achieve the highest water quality consistent with maximum benefit to the people of the State and so as to promote the peace, health, safety, and welfare of the people of the State. The policy prescribes the following:

- a. Where the existing quality of water is better than required under existing water quality control plans, such quality will be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State and will not unreasonably affect present and anticipated beneficial uses of such water.
- b. Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high quality waters will be required to meet waste discharge requirements which will assure (1) a pollution or nuisance will not occur and (2) the highest water quality consistent with the maximum benefit to the people of the State will be maintained.

The SWRCB has interpreted Resolution 68-16 to incorporate the federal antidegradation policy, which is applicable if a discharge, which began after November 28, 1975, will lower existing surface water quality. The State Water Resources Control Board issued guidance to Regional Water Quality Control Boards (Administrative Procedures Update

90-004) regarding the implementation of the State and federal antidegradation policies in the NPDES permitting process. This guidance provides a tiered approach to the analysis of compliance with the antidegradation policies. In brief, the guidance indicates that the complexity of the analysis depends on the magnitude of water quality change associated with a proposed action. The guidance states that actions which produce minor effects and do not result in a significant reduction in water quality require a simpler level of analysis and may be found to be consistent with the intent and purpose of the antidegradation policies as a result of that analysis. For actions which produce significant changes in water quality, the guidance states that a showing must be made that such changes result in the maximum benefit to the people of the state and are necessary to the social and economic welfare of the community to be consistent with the antidegradation policies.

### Effluent Discharge

The proposed Tracy discharge is subject to an array of federal and State regulatory requirements described above. Regulations affecting the City of Tracy will be described in waste discharge requirements established by the State of California and approved by the USEPA, as summarized below.

### *Waste Discharge Requirements (WDRs) and NPDES Permit Requirements*

The wastewater discharge from the City of Tracy will be regulated under a NPDES permit to be issued by the RWQCB. The RWQCB order provides findings, discharge prohibitions, effluent limitations, provisions and self-monitoring requirements. The findings of the NPDES permit provide information about the design and operation of the treatment plant, protection of beneficial uses, and compliance with applicable standards.

The discharge prohibitions and limitations in the permit are designed to ensure the maintenance of public health and safety, protection of receiving water resources, and safeguarding of the designated beneficial uses. Discharge limitations define allowable effluent quantities for flow, biochemical oxygen demand (BOD), total suspended matter, residual chlorine, settleable matter, total coliform, oil and grease, pH, and toxic pollutants. Limitations also encompass dissolved minerals and toxicity to aquatic life. The provisions would provide stipulations for the disposal of solid materials, and limitations on effects caused to receiving waters.

The permit would also specify the sampling, monitoring, and reporting requirements for compliance with waste discharge regulations. The monitoring program entails sampling influent, effluent, and receiving water.

### *Recycled Wastewater Requirements*

Wastewater reclamation in California is regulated under Title 22, Division 4 of the California Code of Regulations, which were promulgated in 1978 and are currently being revised. The intent of the regulations is to ensure protection of public health associated with the use of recycled water. The regulations establish acceptable levels of constituents

in recycled water for a range of uses, and prescribe means for assurance of reliability in the production of recycled water. Use of reclaimed water for non-potable uses is common throughout the State and is an effective means of maximizing use of water resources in water-short communities. The California Department of Health Services (DHS) has jurisdiction over the distribution of reclaimed wastewater and the enforcement of Title 22 regulations. The RWQCB is responsible for issuing waste discharge requirements (including discharge prohibitions, and monitoring and reporting programs) and user re-use requirements associated with the implementation of wastewater reclamation projects.

### **California Drinking Water Standards**

The USEPA sets national primary drinking water standards or Maximum Contaminant Levels (MCLs) under the Federal Safe Drinking Water Act. The State of California Department of Health Services (DHS) has been delegated by the USEPA the responsibility of operating California's drinking water program. DHS is accountable to the USEPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by the USEPA. State drinking water MCLs for the heavy metals and priority organic pollutants identified under the "Existing Effluent Quality" section above are incorporated by reference into the Basin Plan (CVRWQCB, 1998).

Title 22 of the California Administrative Code (Division 4, Chapter 15, Article 16, § 64449) defines secondary drinking water standards, which are established primarily for reasons of consumer acceptance (i.e., taste) rather than for health issues. For mineralization (i.e., TDS and chloride), the secondary standards are expressed in the form of recommended, upper, and short-term MCLs. The recommended, upper, and short-term MCLs for TDS, as described in the California Safe Drinking Water Act (Title 22, Division 4, Chapter 15, Article 16, § 64449), are 500, 1,100, and 1,500 mg/L, respectively (CDWP, 2000). The recommended upper and short-term MCLs for chloride are 250, 500, and 600 mg/L, respectively.

Currently, no numeric State or federal water quality standards or goals exist for total organic carbon (TOC) in the San Joaquin River or the Delta. This is because TOC itself does not pose direct health risks, but rather is indirectly of concern due to its role as a precursor to the production of trihalomethanes (THMs) and other disinfection by-products (DBPs) in chlorinated drinking water supplies.

### **Relationships between Water Quality and CVP and SWP Operations**

The Central Valley Project (CVP) and State Water Project (SWP) are responsible for maintaining water quality in the Delta to standards established by the SWRCB. Compliance with the standards is maintained, in part, by regulating the releases from CVP/SWP reservoirs upstream of the Delta. During certain months of certain years, a major portion of inflow to the Delta is affected by CVP/SWP regulation.

Both flow and water quality standards exist for the Delta. Flow standards are generally imposed as a minimum required average river flow at a specific location or by a minimum index of water flowing through the Delta (Delta Outflow Index), and do not bear an associated water quality requirement per se. Quality standards are expressed as average or maximum allowable constituent concentrations (e.g., total dissolved solids (TDS), chlorides, electrical conductivity (EC)) at specific locations. The proposed discharge of effluent from the City of Tracy will occur at the southeast extreme of the Bay-Delta Estuary. Its contribution to Delta inflows via Old River, and to a very small extent the San Joaquin River may, therefore, incrementally influence the quantity and quality of inflows to the Delta.

### III. ANALYSIS OF SURFACE WATER QUALITY IMPACTS

#### Factors influencing the impact analysis

The surface water quality impacts of the proposed expanded discharge from the City of Tracy wastewater treatment facility are dependent on a number of factors. These factors include:

- Existing and projected effluent quality
- Ambient conditions (flow and quality) in the receiving waters
- Type and configuration of diffuser used for effluent discharge
- Distance from the point of discharge

Specific information pertaining to the proposed project for each of these factors is provided below.

#### Existing and Projected Effluent Quality

As noted above, the proposed project would increase the level of treatment and increase the rate of discharge from the City of Tracy wastewater treatment plant. The effluent quality from the existing and the proposed City of Tracy wastewater treatment plant is summarized in Table E-4.

**Table E-4. City of Tracy – Existing and Projected Effluent Quality**

Parameter	units	Existing Eff Conc		Projected Eff Conc	
		Avg	Max	Avg	Max
CBOD5	mg/l	20	30	5	20
TSS	mg/l	15	30	5	20
pH		7.3	7.5	7.0	7.5
Ammonia	mg/l	15	30	0.5	3.0

Total Coliform	MPN/100 ml	23	1600	2.2	23
Fecal Coliform	MPN/100 ml	<23	240	<2.2	<23
Total dissolved solids	mg/l	1000	1000	1000	1000
Hardness	mg/l	290	310	290	310
Turbidity	NTU	5	20	2	5
Temperature	Deg F	77	85	77	85

Trace Elements

Arsenic	ug/l	3	4	2.0	4.0
Cadmium	ug/l	0.05	0.1	0.05	0.1
Chromium	ug/l	1.7	2.4	0.5	1.0
Copper	ug/l	6	10	5	10
Lead	ug/l	5	19	0.5	1.0
Mercury	ug/l	0.015	0.02	0.01	0.015
Nickel	ug/l	2.5	5	2.5	5
Selenium	ug/l	0.8	1.0	0.5	1.0
Silver	ug/l	0.6	1.0	0.2	0.5
Zinc	ug/l	30	84	30	50
Cyanide	ug/l	3	5	3	5

Trace Organics (ug/l)

Bromodichloromethane	1	1.6	1	1.5
Chloroform	6	17	5	15
Bromoform	0.2	0.3	0.2	0.3
Dichlorobromomethane	0.2	0.3	0.2	0.3
1,4-dichlorobenzene	0.2	0.3	0.2	0.3
Dichloromethane	2	5	2	5
Toluene	0.4	0.8	0.4	0.8
Dieldrin	0.01	0.01	ND	ND
bis 2 (ethylhexyl) phthalate	11	18	11	18
Phenol	4	5	4	5
Tetrachloroethylene	0.7	2.5	0.7	2.5
Trichloroethylene	0.2	0.3	0.2	0.3
Ethylbenzene	0.2	0.3	0.2	0.3
Aldrin	0.01	0.01	ND	ND
Endosulfan	0.02	0.02	ND	ND
Heptachlor	0.008	0.008	ND	ND

Note: Existing data derived from City of Tracy effluent data reports.

**Ambient Conditions**

Flow conditions in the Old River and downstream waters are influenced significantly by climatic conditions, tides, configuration of gates and barriers in Old River and the South Delta, and operation of the intake pumps for the State and federal water projects.

Mathematical models (see description below) are used in this analysis to simulate flow conditions over a range of these conditions. Model output is used to approximate critical flow conditions for the water quality impact analysis.

Resulting water quality data quantifying conditions in the Old River and waters of the Delta has been described above and is summarized in Appendix F. These summaries describe water quality information for a range of water year conditions. These summaries provide information regarding the frequency of occurrence of various water quality conditions (i.e. 10<sup>th</sup> percentile, 50<sup>th</sup> percentile or 90<sup>th</sup> percentile occurrence frequency) which is useful in the analysis of impacts.

### **Distance from Point of Discharge**

The impacts of the proposed discharge of treated effluent diminish with distance from the point of discharge (see Figure E-3). In the water quality analysis described below, the area closest to the point of discharge in Old River is called the "near field" area. The near field area encompasses the immediate transition or "mixing zone" in which the treated effluent mixes rapidly with the receiving water. The "far-field" area extends thousands of feet from the point of discharge to locations of upstream or downstream interest, i.e. drinking water intakes.

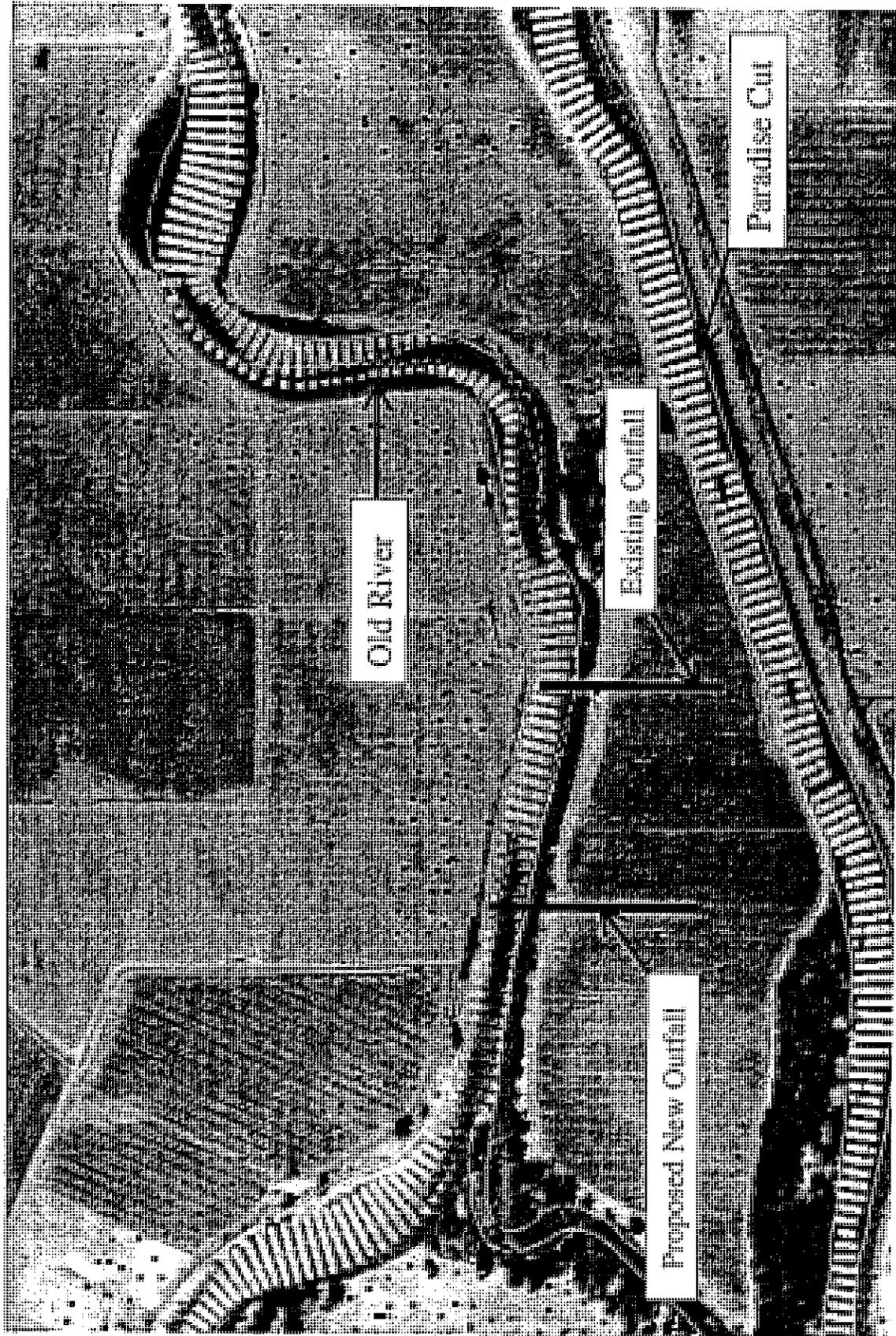
### **Description of Diffuser**

The proposed discharge will occur through a diffuser located at the bottom of the San Joaquin River. The diffuser will consist of a pipe with multiple ports of smaller diameter than the main pipe spaced evenly along its length. Treated effluent will be rapidly mixed into the river through the jet action of the diffuser ports. The water quality changes caused by the effluent will decrease with distance from the diffuser, creating a gradient in concentration ranging from undiluted effluent to a dilute mixture of effluent with river water.

The assumed diffuser configuration includes two diffusers, existing and proposed, as follows:

- Diffuser perpendicular to side bank
- Diffuser widths of 70 and 77 feet, respectively
- River widths of 165 and 145 feet, respectively
- Diffuser ports mounted with valves to prevent back-flow into diffuser and
- Ports directed at an angle of zero degrees above horizontal
- Diffusers approximately centered in river bottom

Figure E-3. Location of the existing and proposed new outfall in Old River



## Method of WQ Analysis

As noted above, the analysis of surface water quality impacts resulting from the proposed discharge of treated effluent is largely based on mathematical modeling and numerical evaluations. These mathematical modeling studies are described in technical reports prepared by RMA, Inc. (Appendix D). The projected effluent quality and ambient data described previously is used to assess the aggregate effects of the proposed discharge on specific parameters. In general, reasonable estimates of worst case conditions are assumed in the impact analysis to provide a conservative indication of water quality impacts. Examples include the use of low river flows, critical Delta configurations, elevated pH and ammonia levels, depressed dissolved oxygen and hardness values, etc. Continuous simulations of flow conditions derived from an extensive historic record of climatological conditions (1922 to 1995) were used to determine reasonable worst cases conditions. Several different Delta configurations and CALFED operational scenarios were assessed in the modeling effort to provide an understanding of potential future outcomes.

## Near-field Analysis

For regulatory purposes, the Central Valley Basin Plan and the SIP allow consideration of a "mixing zone" in the vicinity of the diffuser. A "mixing zone" is a relatively small volume of water within which compliance with water quality objectives is not required. Instead, compliance with water quality objectives is required at the edge of the mixing zone. The Basin Plan and SIP each require that concentrations of toxic pollutants in the effluent be sufficiently low and the mixing zone dimensions to be sufficiently small to prevent lethality to passing organisms.

The near field water quality analysis performed for the City of Tracy discharge evaluated pollutant concentrations in the vicinity of the existing and/or proposed diffuser. The Cornell Mixing Zone Expert System (CORMIX) plume model was used to perform the near-field water quality analysis and to evaluate initial dilution in the vicinity of the proposed diffuser. The CORMIX model was developed under a cooperative agreement between USEPA and Cornell University, and has been recommended for use in the permitting of point source discharges in several USEPA guidance documents, including the *Technical Support Document for Water Quality-Based Toxics Control*, 1991. The results of the CORMIX modeling for the Tracy discharge were checked against plume model results obtained using USEPA's new Visual Plumes mixing zone model. This comparison indicated that the CORMIX model results predicted similar, albeit slightly greater impacts than the Visual Plumes model. Therefore, the CORMIX results were used in the near field analysis to provide reasonable estimates of worst case results.

The near-field analysis was based on the following assumptions:

- Critical low flows in the Old River (i.e. during the drought of the early 1990's; represents observed worst case since New Melones Reservoir was fully operational)

- Critical low velocities in the river during the discharge period
- Ambient concentrations reflective of reasonable estimates of worst case conditions in the vicinity of the discharge

Near field changes in water quality have been evaluated for the following parameters of concern:

- Temperature
- Ammonia
- Trace metals
- Trace Organics

### **Far-field Analysis**

The far-field analysis was designed to predict the fate of the wastewater and its impacts within the Bay and Delta system. The ultimate fate and water quality impacts of the treated effluent is influenced by the complex hydrology of the Sacramento – San Joaquin River Delta. An estimate of the Tracy treated effluent fraction within the Delta was computed to assess related impacts on ambient water quality. An estimate of the treated effluent component at major water supply export locations was computed to assess impacts on water supply quality. The major export locations include:

- Central Valley Project (CVP) intake at the Tracy Pumping Plant (Delta-Mendota Canal intake)
- State Water Project (SWP) intake at Clifton Court
- Contra Costa Water District (CCWD) intake to Los Vaqueros Reservoir from the Old River near Byron (State Highway 4)

In addition, the Old River near the discharge point was examined to estimate the fraction of Tracy effluent which accumulates during periods when flow is restricted by barrier operation.

The far-field water quality analysis was performed using a link node hydrodynamic mathematical model of the San Joaquin River and Delta. The models employed in the analysis were selected based on a proven track record of use in the analysis of hydrodynamics and water quality in the Bay-Delta. The link-node modeling system contains a hydrodynamic model that computes velocities and stage at 90-second intervals. The link-node tidally averaged water quality model simulates the long-term transport and fate of a discharge to the Delta system. The network representation of the Bay and Delta was developed jointly by RMA, DWR and others. The model was calibrated for flow and transport using EC or TDS (Smith and Durbin, 1989). The model simulates flow, stage and water quality based on simulations using the climatic conditions occurring over

the 1922-1995 hydrologic year period. Monthly hydrologic data generated by the DWR operations models (DWRSIM) were used in the simulations. Two CALFED alternatives (the No Action and the Preferred alternatives) were used to cover a range of future Delta operation scenarios being considered in the ongoing CALFED evaluation of Delta operation (CALFED, 2000).

A total of four Delta configurations were considered. These included (1) the present Delta configuration without barriers, (2) the present Delta configuration with the temporary Old River fish barrier, (3) the present Delta configuration with temporary South Delta barriers, and (4) an enhanced Delta configuration including an enlarged Clifton Court Forebay plus Byron intake and dredged channels with permanent south Delta barriers.

The link-node model was used to compute the average daily fraction of Tracy treated effluent throughout the Delta and at export locations in a continuous simulation modeling run using observed climatological conditions for the 73-year period from 1922-1995.

The parameters of concern which were evaluated in the far-field analysis include

- Dissolved oxygen
- Total organic carbon
- Total dissolved solids
- Pathogens
- Trace elements
- Trace organics

The analytical methodology used in the far-field analysis was to estimate incremental increases in pollutants of concern at various locations of importance in the San Joaquin River and Delta. In the far field analysis for most parameters, a worst-case assumption was made that the water quality constituents in the effluent discharge were conservative, i.e. did not decay with distance or with time after release through the diffuser. An exception to this assumption was ammonia and oxygen demanding material (e.g. BOD), which were assumed to exhibit first-order decay over time. The analysis of dissolved oxygen impacts of the proposed discharge in the Delta reflects this assumption.

Where existing water quality data is available, the incremental water quality changes described above were added to the current baseline concentrations to assess compliance with water quality objectives. Where existing data are not available, a qualitative analysis has been performed. The analysis of most trace elements and trace organics in the far-field is limited by a lack of available ambient data.

#### Significance Criteria

The significance of the water quality changes associated with the proposed discharge will be determined based on the determination that the discharge would cause the following:

1. Violation of anticipated requirements of the NPDES permit which will be used to regulate the discharge in accordance with State and federal requirements.
2. Violation of enforceable water quality standards contained in the Central Valley Basin Plan, statewide water quality control plans, or federal rulemakings applicable to California.
3. Inconsistency with State and federal antidegradation policies

The above criteria are consistent with the regulatory framework for water quality control in California, including the mandates and directions provided by the federal Clean Water Act and the Porter-Cologne Act.

### Impacts Analysis

The results of the near-field and far-field water quality analyses for the proposed tertiary effluent discharge from the Tracy are provided in this section.

#### Near-field Impacts

For a number of effluent parameters (e.g. total suspended solids, turbidity, coliform organisms, etc.), the impact of the discharge of high quality tertiary effluent from the proposed City of Tracy treatment facilities into the Old River will result in a localized improvement in water quality. The low levels of these constituents in the proposed discharge will have a localized diluting effect on the river within the mixing zone. For instance, the total suspended solids concentration in the treated effluent will be less than 5 mg/l. Suspended solids levels in the San Joaquin River will typically exceed this value. For turbidity, the predicted quality of the treat effluent will range from an average of 2 NTU to a maximum of 5 NTU. Ambient turbidities in the San Joaquin River also typically exceed this value. Total coliform levels in the treated effluent will typically be less than 2.2 MPN per 100 milliliters, with maximums of 23 MPN/100 ml. Fecal coliform levels in the effluent will be less than these values. For instance, median fecal coliform levels in upstream waters (San Joaquin River at Mossdale) exceed 125 MPN/100 ml, while ninety percent of the time, fecal coliform levels exceed 48 MPN/100 ml.

The near-field analysis for sensitive parameters (temperature, ammonia, and trace metals) was performed using computed minimum flows and velocities for the Old River. The flow and velocity in Old River is directly affected by the permanent and temporary barriers in the South Delta. Also, tidal action causes reverse flows and prolonged periods of near slake water (several hours) at low river flows. Table E-5 summarizes tidally averaged minimum flow and velocity conditions occurring in Old River near the Tracy discharge point during various seasons under different Delta configurations and CALFED operating schemes. A review of Table E-5 indicates minimum average velocities of less than 0.5 feet per second for all conditions evaluated and minimum average velocity of 0.2 feet per second during summer months when South Delta barriers are in place.

**Table E-5. Minimum flows and velocities at the Tracy discharge point under different conditions and seasons**

Condition	December-March		April-May		June-September		October-Nov	
	Flow cfs	Vel fps	Flow cfs	Vel fps	Flow cfs	Vel fps	Flow cfs	Vel fps
No action, no barriers	849	0.42	905	0.44	718	0.36	876	0.43
No action, Old R fish barrier	849	0.42	917	0.45	718	0.36	586	0.30
No action, Temporary barriers	849	0.42	919	0.45	<b>340</b>	<b>0.16</b>	584	0.30
No action, Permanent barriers	834	0.41	1008	0.49	<b>343</b>	<b>0.16</b>	810	0.41
CALFED Preferred alt, permanent barriers	833	0.41	1012	0.49	<b>342</b>	<b>0.16</b>	469	0.40

The initial dilution of the effluent plume was evaluated for the range of flows and velocities listed in Table E-5. Minimum dilution conditions were observed at low river velocities. The modeling analysis indicated that initial dilution is dominated by the high exit velocity into a slow moving body of water. The plume typically surfaces within 40 feet of the diffuser. Table E-5 shows the dilution ratios and elapsed time to surfacing of the plume under varying conditions of flow and velocity. Information in the table indicates initial dilution ratios under an average effluent discharge rate of 16 mgd ranging from 21:1 to 46:1.

#### Temperature

River temperature data for the San Joaquin River at Mossdale was used in this analysis. Temperatures at this location are representative of the water temperatures in the South Delta (see Appendix F). The river temperature data set at Mossdale consists of over 112,000 hourly data points taken between 1984 and 2000. For effluent temperature, data from the City of Manteca was used due to the strength of the data set (n=1200) and the technical judgment that the Tracy effluent temperature values would be expected to be similar to the data from a neighboring facility.

Since Old River resembles a slow moving stream under controlled flow conditions (i.e. barriers in place), a heat balance temperature analysis was performed. The CORMIX dilution model was run for a range of flow conditions as listed in Table E-5. The analysis of worst case temperature impacts of the proposed discharge is described in Appendix D. The analysis evaluates the temperature increase that will result from the discharge of warmer treated effluent into a cooler Old River during critical low flow conditions.

Under low flow conditions, the temperature increase resulting from the proposed discharge will produce a 0.7 to 3.0 degree Fahrenheit temperature increase at the edge of a 21:1 mixing zone. This incremental temperature change is not in compliance with the requirements of the California Thermal Plan, which limit such changes to one degree F over 25 percent of the river cross section. This requirement exists to avoid creation of potential thermal barriers to migrating fish species.

The predicted worst case temperature impact of the discharge is not in compliance with existing water quality plans and policies (Basin Plan and Thermal Plan) and is therefore deemed to be potentially significant.

#### Ammonia

The following analysis of ammonia toxicity deals with acute toxicity (which pertains to short term, e.g. one day, exposures of aquatic life to ammonia) and chronic toxicity (which pertains to long term, e.g. 30 day, exposures).

The concentrations of ammonia resulting from the proposed Tracy treatment facility are anticipated to range from less than 0.2 milligrams per liter (mg/l) in the warm summer months to 3 mg/l in the winter. The toxicity of ammonia varies significantly with pH. Typical effluent pH will be 8.0 or lower. Based on the most recent USEPA national criteria for ammonia in fresh water, an effluent ammonia concentration of 3.0 mg/l may cause acute toxicity at a pH of 8.3 or greater (at an exposure of one day). At an effluent pH of 8.0, an effluent ammonia concentration of 5.6 mg/l would be the safe threshold for acute toxicity. Therefore, the effluent from the proposed Tracy treatment facility would not be expected to cause or contribute to ammonia acute toxicity at any point in the mixing zone in Old River.

The USEPA criterion for chronic toxicity for ammonia is also pH dependent, ranging from 0.43 mg/l at a pH of 8.7 to 2.1 mg/l at a pH of 7.6. These pH values (7.6 and 8.7) correspond to the minimum and maximum monthly average values for the Old River and south Delta (see Appendix.D). Highest pH values are predicted to occur in the summer months (June through September). Available data indicates that the maximum monthly ammonia level in the receiving waters is 0.22 mg/l. Therefore, at observed maximum ammonia and pH values in Old River and downstream waters, ammonia chronic toxicity is not predicted to occur.

The maximum projected monthly average effluent ammonia for the Tracy facility is 0.5 mg/l. This concentration is predicted to be lower than this value in the warm summer months, when conversion of ammonia to nitrate will be most readily achieved in the proposed Tracy treatment facility. If a monthly average effluent concentration of 0.5 mg/l ammonia is assumed as a worst case for this analysis, the dilution model indicates that the dilution of this concentration to 0.43 mg/l and lower will occur within two feet of the Tracy diffuser. The area of this mixing zone would be less than one percent of the cross sectional area of the river. Therefore, the proposed discharge would not be predicted to have significant acute or chronic impacts on aquatic life due to ammonia levels in the discharge.

#### Trace metals

The estimated maximum effluent concentrations of trace metals from the proposed City of Tracy tertiary treatment facilities are described below in Table E-6:

**Table E-6: Estimated Maximum Total Recoverable Trace Metals Concentrations from Proposed City of Tracy WTRP.**

Trace Metal	Estimated Max Total Recoverable Concentration ( $\mu\text{g/L}$ )	Minimum Relevant Water Quality Chronic Criterion ( $\mu\text{g/L}$ )	Source of Criterion
Arsenic	4.0	10	Basin Plan
Cadmium*	0.1	1.3	CTR
Chromium*	1.0	101	CTR
Copper*	10	5.0	CTR
Lead*	1.0	1.17	CTR
Mercury	0.015	0.050	CTR
Nickel*	5	28.9	CTR
Selenium	1.0	5.0	Basin Plan & CTR
Silver*	0.5	1.05	CTR
Zinc*	50	65	CTR

\* Criteria shown for these trace metals are chronic criteria expressed as dissolved concentrations in ambient waters based upon a water hardness value of 50 mg/L as CaCO<sub>3</sub>. Minimum observed hardness in the Delta waters in the vicinity of the proposed discharge is 36 mg/l as CaCO<sub>3</sub>, while the hardness concentration exceeded at least 90 percent of the time is 52 mg/l as CaCO<sub>3</sub>. Effluent hardness averages 290 mg/l as CaCO<sub>3</sub>, which will raise the hardness level in the mixing zone.

These projected effluent concentrations were estimated based on review of effluent data from tertiary treatment plants throughout California, including the Central Valley, San Francisco Bay area and Southern California.

In comparing the projected effluent concentrations with numeric water quality objectives for the San Joaquin River contained in the Basin Plan and/or the California Toxics Rule (see Table E-6), most of the metals would achieve compliance with these objectives without consideration of dilution. Copper is an exception to this statement. As such, it is necessary to assess whether the projected effluent copper concentration would be

expected to cause or contribute to the violation of the existing water quality objective for copper.

The calculation to assess whether the proposed discharge would be expected to cause or contribute to a violation of the water quality objective for copper is dependent on the ratio of effluent to river flow, the hardness of the effluent and river water, and the concentration of copper in effluent and ambient waters (at the point of discharge).

The allowable credit for dilution, in accordance with the SIP, is based on the ratio of the effluent flow to a low river flow. In setting a dilution credit for assessment of compliance with acute objectives, a river flow of 1Q10 is employed (lowest daily flow in ten years). The flow ratio for assessment of acute compliance is approximately 14:1, based on a critical low river flow of 340 cfs and an average dry weather discharge of 16 mgd (24.6 cfs). In setting a dilution ratio for analysis of chronic objectives, a 7Q10 river flow is assumed (lowest one week average flow in ten years). The flow ratio for chronic assessment is conservatively estimated to be 25:1.

As noted, minimal data exists for most trace metals in the Old River and South Delta waters. Available ambient data does exist for copper, as summarized in Appendix F. Copper values in South Delta waters range from a median of 3.0 to 90<sup>th</sup> percentile values of 4.4 ug/l as dissolved copper. Available data also indicate that the lowest hardness concentrations in the San Joaquin and Old River range from a minimum of 36 to a 10<sup>th</sup> percentile value of 52 mg/l as CaCO<sub>3</sub>. Hardness modifies the water quality objectives for copper and a number of other trace metals. Assuming a hardness value of 50 mg/l as CaCO<sub>3</sub>, a reasonable assumption for chronic toxicity analysis, the freshwater chronic objective for copper is 5.0 mg/l. This assumed hardness is conservative near the discharge point (i.e. in the mixing zone), since effluent hardness is projected to average 290 mg/l as CaCO<sub>3</sub>.

Beyond the consideration of dilution, for copper (and other trace metals), USEPA recommends use of dissolved/total translators and/or site-specific water effects ratios (WER) to better evaluate trace metal impacts. Based on experience in similar water bodies, a "translator" (dissolved to total copper ratio in Old River) of 0.5 and a dissolved WER of 2.0 (which means that actual toxicity in the Old River would be one half of the toxicity observed in clean lab water tests) could reasonably be assumed. If either of these assumed values was used, independent of dilution considerations, the proposed Tracy discharge would have no potential for copper toxicity. Given that dilution, a translator, and a water effect ratio exist simultaneously for the Tracy discharge, it is concluded that copper in the proposed effluent will not create an adverse impact in the receiving water.

For mercury and other 303(d) listed pollutants, completion of the TMDL (a science-based process) will result in a wasteload allocation and implementation plan to direct steps to produce compliance with objectives. The proposed discharge will be required to meet the prescribed conditions of a future TMDL implementation plan, which may include source control, reduction of non-point sources, etc. The TMDL implementation plan will define

and mandate mitigation projects for the City's future discharge for individual 303(d) listed pollutants, if warranted.

### Trace Organics

The projected trace organic concentrations in the future Tracy discharge are unknown. Based on review of data from other municipal treatment plants in California, potential trace organics in the proposed tertiary effluent may include diazinon, lindane and bis-2 (ethylhexyl) phthalate. The presence of these pollutants in the proposed City of Tracy discharge cannot be confirmed until specific measurements of the discharge are made. For diazinon and lindane, which are included on the 303(d) list for the Delta waterways, strict NPDES permit limitations and TMDL implementation plan requirements would be imposed if these pollutants were detected in the proposed discharge.

Due to a paucity of effluent and ambient data on trace organics and the uncertainty regarding the presence of these pollutants in the proposed discharge, the ability to assess compliance with water quality objectives for these pollutants is severely limited. As noted above, 303(d) listed trace organics will be regulated under the City's NPDES permit if appropriate to preclude significant adverse impacts on receiving waters.

### Pathogens

The proposed treatment system for the City of Tracy will produce an effluent that meets strict Title 22 requirements for unrestricted reclamation uses. These requirements include a median total coliform concentration of 2.2 MPN/100 ml and a maximum of 23 MPN/100 ml. Treatment facilities that meet these Title 22 requirements have been shown to achieve very effective removal of pathogens, including viruses. The proposed disinfection process will be a chlorination/dechlorination system that is capable of removal of *Cryptosporidium parvum* and *Giardia lamblia*, two pathogens of serious concern to drinking water suppliers.

Given the proposed treatment process and available initial dilution that the discharge will receive, the proposed discharge will not adversely impact beneficial uses at the point of discharge or in downstream waters.

### Far-field Impacts

The far-field link node model analysis was used to predict the fate and impact of the Tracy discharge as influenced by the complex hydrology of the Sacramento-San Joaquin Delta. The analysis produces estimates of the fraction of the Tracy discharge that will exist at important downstream locations in the Delta, using monthly hydrologic data for the period 1922 through 1995.

For the far-field analysis, it is necessary to make assumptions regarding the configuration and operation of Delta facilities. Two operational scenarios were assumed in this

analysis: the CALFED no action alternative (existing baseline) and the CALFED preferred alternative.

CALFED has performed numerous DWRSIM operations model simulations to evaluate various scenarios for managing the water resources of the Sacramento and San Joaquin River systems. These operation studies are summarized in the CALFED EIR/EIS draft programmatic Attachment A. Two no-action and eight preferred alternatives are summarized. The monthly hydrology for the following operation studies were used to cover the range of future Delta operation conditions being considered in the CALFED evaluation of Delta operation.

- No-Action; 2020D09C-CALFED-785
- Preferred Alternative without Hood Diversion; 2020D09C-CALFED-789

These two scenarios result in the minimum predicted Old River monthly flow of 340 cfs.

Model boundary conditions include the San Joaquin and Sacramento Rivers and other major rim inflows, in-Delta consumptive use and export rates on a monthly time interval. In-Delta consumptive use rates were allocated to individual network elements based on historical inflow and withdrawal patterns.

A wet weather flow increment for the City of Tracy discharge was computed as a function of the net channel depletion defined by the operations model. The net channel depletion represents in-Delta use less precipitation. The wet weather increment, which was defined as an inverse linear relationship with the net channel depletion, varied between 0 and 16 MGD. Therefore the total wastewater inflow ranged between 16 and 32 MGD. This approach results in wet weather flow increments that respond to hydrologic conditions. As an example, no wet weather increment would be added for January 1976 (drought) and a 16 MGD increment would be added for January 1978 (end of drought).

Tidal inputs at the Bay boundary near Benicia assume a typical diurnal tide.

The operation of the Delta cross channel, Old River fish barrier, Clifton Court gates and the south Delta facilities are not specified by DWRSIM. Therefore, several Delta operational assumptions were evaluated to cover the expected range of flow control possibilities. These operational assumptions are based on our understanding of current operation philosophies gleaned from information provided by the DWR (Nelson, 2000; Roberts, 2000).

## 1. CALFED No-Action Operation without Old River Fish Barrier or south Delta facilities

Since the operation of the Delta cross channel, Old River fish barrier, Clifton Court gates and the South Delta Facilities are not specified by DWRSIM, the following criteria were used to simulate operation of facilities for the no-action scenario. The south Delta facilities, including the Old River fish barrier, are temporary in nature and may not be installed during some years. For this alternative, it is assumed that those facilities are not in place.

### Delta Cross Channel

(The Delta cross channel is closed for flood control and fisheries considerations.)

- Closed from October first through the end of May.
- **Open during June, July, August and September except when the Sacramento River flow exceeds 25,000 cfs. (The Cross Channel is usually open during this period unless elevated water levels associated with high flows are of flood control concern.)**

### Clifton Court gate

(The Clifton Court gates are operated to maintain minimum depths to protect agricultural intakes and to control scour velocities in Delta channels.)

- Open during the 18 hours of the tide cycle with the highest water surface elevations at the intake location, closed during low tide.

### Channel improvements

(none)

## 2. CALFED No-Action with temporary Old River Fish Barrier

The temporary Old River fish barrier has been installed during the spring and fall for many years, while the temporary South Delta facilities have only been installed since 1992. Therefore, this no action scenario was simulated with the Old River barrier only to enable assessment of the incremental effect of the south Delta facilities on dilution at the Tracy discharge point. The following gate and barrier operations were assumed:

### Delta Cross Channel and Clifton Court gate

As defined for the scenario above.

### Old River Fish Barrier

(The Old River fish barrier is used to keep San Joaquin water out of the southern Delta in an attempt to improve conditions for migrating salmon adults and out-migrating salmon smolts. The Old River barrier is also operated to control south

Delta TDS and dissolved oxygen within the Stockton ship channel. For our evaluation, a screen pipe installation was assumed as part of the barrier to allow some flow down Old River. This assumption is designed to represent the need for dilution water past the City of Tracy discharge point. This assumption results in a slight increase in the amount of wastewater reaching the export points.)

- In place during April, May, October and November if San Joaquin River < 7,000 cfs. (The temporary barrier cannot be installed at elevated flow rates and the barrier is designed to pass elevated flows for flood control considerations.)
- Removed during all other months

### **3. CALFED No Action with temporary south Delta facilities and Old River fish barrier**

The temporary South Delta facilities are designed to raise the water surface levels in the Delta during the irrigation season by restricting flows out of the southeastern Delta. This Delta configuration closed resembles current Delta operation. The following gate and barrier operations were assumed:

#### **Delta Cross Channel, Clifton Court gate and Old River Fish Barrier**

As defined for the scenarios above.

#### **South Delta Facilities**

(The south Delta facilities are three temporary structures designed to maintain water surface levels in the Southern Delta. They utilize 48-inch pipes equipped with flap gates to force uni-directional flows to the east. Based on the most recent installation, a six and nine pipe configuration was assumed for Middle and Old River barriers respectively. Six pipes were assumed for the Grant Line Canal installation, however three of the pipes were assumed to allow flow in both directions to prevent water stagnation east of the barriers.)

- Old River and Middle River barriers in place from April to September
- Grant Line Canal barrier in place from June to September

### **4. CALFED No Action with enhanced Delta configuration and permanent barriers**

The Delta infrastructure for this alternative is based on information taken from the CALFED draft programmatic EIR/EIS, Attachment A. The following gate and barrier operations were assumed:

#### **Delta Cross Channel**

As defined for the above scenarios.

### Clifton Court Gate

(The proposed Byron diversion point was assumed south of the Contra Costa Water district intake on Old River; the existing gate structure was assumed closed. The Byron gates would be operated to maintain uniform inflow velocity)

- Always open with inflow velocity control

### South Delta Facilities

(The permanent south Delta facilities and Old River fish barrier will have gates that operate to control channel flow and stages between the barriers and the San Joaquin River. The timing and operation were assumed as follows except when the San Joaquin River exceeds 7000 cfs)

- Old River and Middle River barriers in place from April through October. Each radial gate was assumed open on the raising tide and closed on the falling tide.
- Grantline Canal barriers in place from June through October. Each radial gate was assumed open except during the three hours preceding higher low water and the four hours preceding lower low water.
- Old River Fish barrier radial gates were assumed closed during the months of April, May, October and November.

### Channel Improvements

(Dredging is assumed for south Delta channels that are currently restrictive or will become restrictive to flow under the preferred alternative operation.)

- Old River between Byron intake and Woodward Channel deepened to a minimum depth of 20 feet NGVD to accommodate the increased SWP export rates.
- Middle River north of Old River deepened to 4 feet NGVD to improve in-Delta circulation.

## **5. CALFED Preferred Alternative Operation**

The operation for the preferred alternative scenario is identical to the above described CALFED No Action scenario with enhanced Delta configuration and permanent barriers. This scenario is based on our understanding of likely improvements to the Delta infrastructure gleaned from information contained in the CALFED draft programmatic EIR/EIS; Attachment A. This scenario was selected for analysis to quantify the differences between the two CALFED operational modes (No Action versus Preferred).

## Far Field Water Quality Model Specifications and Assumptions

Model simulations were performed for the projected maximum City of Tracy dry weather flow plus wet weather increment for the five combinations of Delta alternatives, CALFED operation and Delta hydrology described above. The following water quality parameters were assessed:

- Dissolved oxygen
- Total organic carbon
- Total dissolved solids
- Pathogens
- Trace elements
- Trace organics

A conservative tracer simulation was designed to trace the potential influence of the treated effluent. An arbitrary concentration of 100 was assigned to the treated effluent discharge while zero is assigned to all other sources. The simulated tracer concentration becomes the percentage of treated effluent originating from the discharge. This percentage was computed at each network node and withdrawal location.

### Impacts of Increased Discharge of Tertiary effluent from Tracy

The analysis utilized DWRSIM output for a simulation period from October 1922 through September 1995. Since monthly average hydrology is provided by DWRSIM, all results are presented as end-of-month values that reflect the average condition.

The fate of the Tracy treated effluent was computed by assigning a conservative tracer to the increased discharge from the currently permitted 9 mgd to 16 mgd as described above. Figures E-4 through E-8 show the increase in treated effluent percentage at the three major water supply diversion locations, and in the Old River near the discharge point under differing CALFED operations and Delta configurations. The increased percent of tertiary effluent is plotted versus the percent of the time (abscissa) that the percentage is exceeded during the 73-year simulation period. Table E-7 lists the computed increase in tertiary effluent for the same locations for various occurrence frequencies, expressed as percent of times exceeded.

Figure E-4 Incremental change in the percent Tracy tertiary effluent at the major export points (no-Action alternative without barriers)

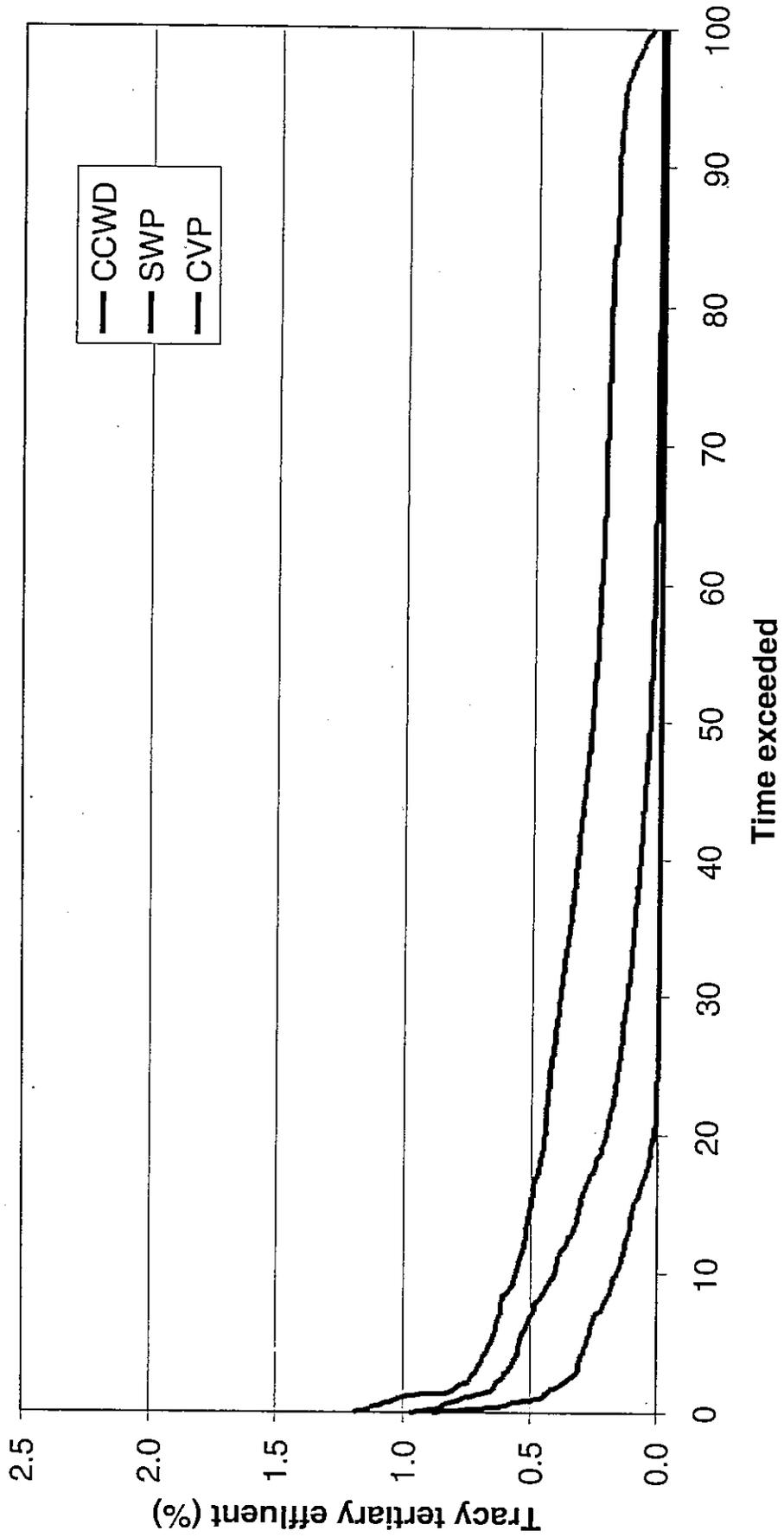


Figure E-5 Incremental change in the percent Tracy tertiary effluent at the major export points (no-action alternative with Old River fish barrier only)

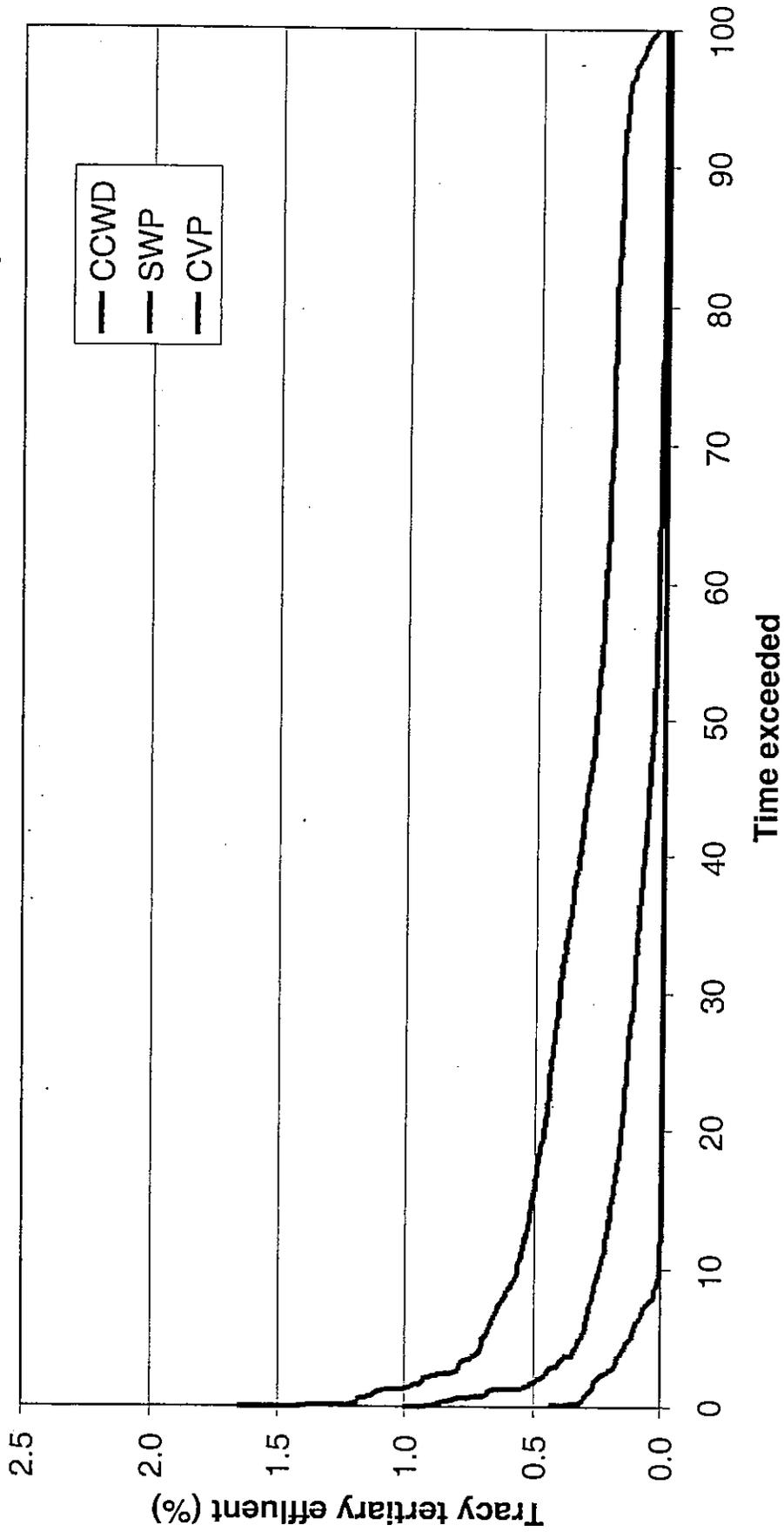


Figure E-6 Incremental change in the percent Tracy tertiary effluent at the major export points (no-action alternative with temporary barriers)

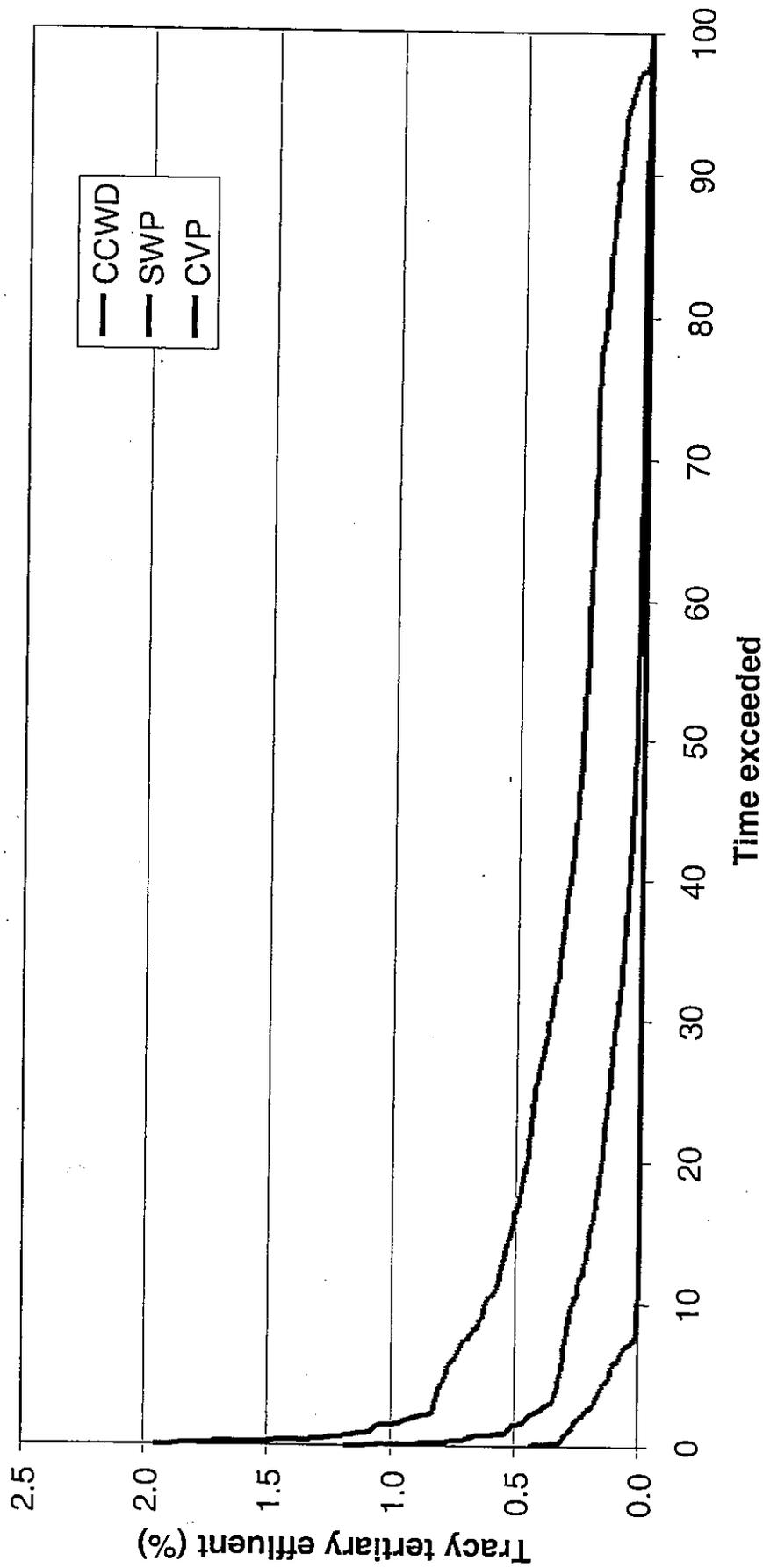


Figure E-7 Incremental change in the percent Tracy tertiary effluent at the major export points (no-action alternative with permanent barriers)

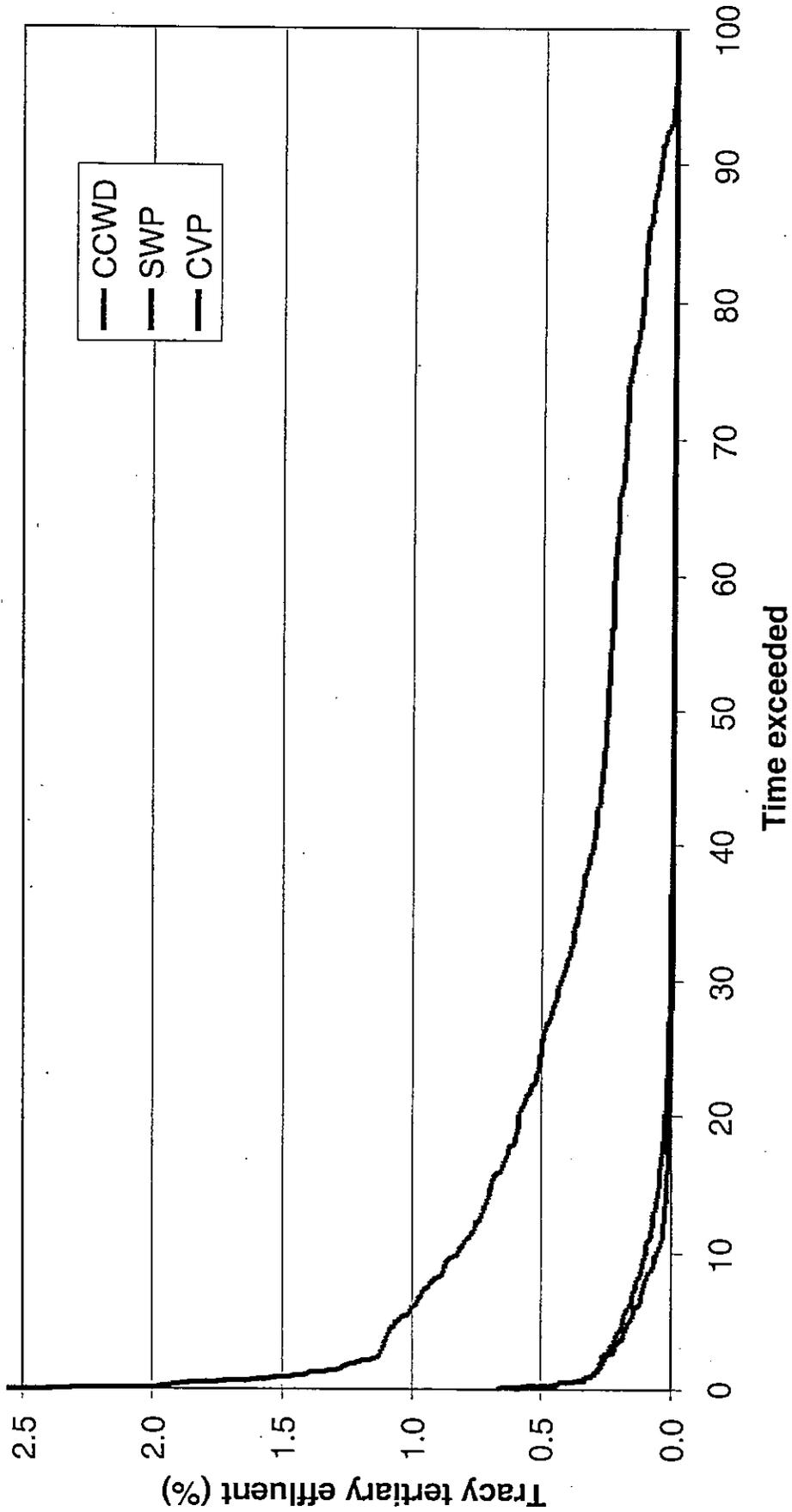


Figure E-8 Incremental change in the percent Tracy tertiary effluent at the major export points (preferred alternative with permanent barriers)

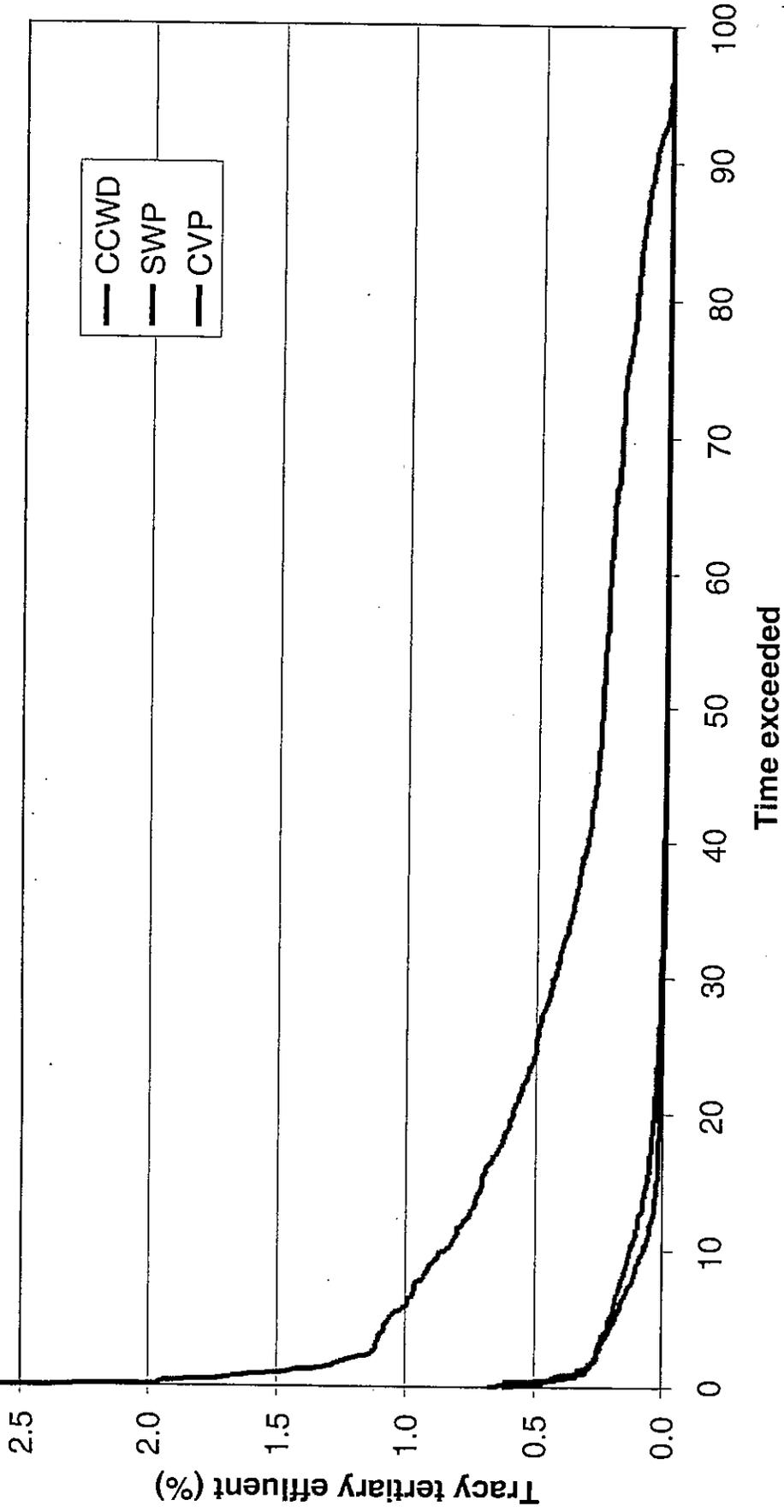


Table E-7 Computed Increase in Percentage of Tracy Tertiary Effluent at Major Water Supply diversion points and in Old River near the Proposed Outfall Site

Location	No-action alternative without barriers			No-action alternative with Old River fish barrier only			No-action alternative with temporary barriers			No-action alternative with permanent barriers			Preferred alternative with permanent barrier		
	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %
CCWD	0.28	0.44	0.88	0.12	0.28	0.44	0.11	0.28	0.43	0.16	0.30	0.60	0.19	0.30	1.03
SWP	0.54	0.76	0.97	0.32	0.68	1.00	0.32	0.53	1.19	0.19	0.30	0.70	0.20	0.33	0.68
CVP	0.65	1.01	1.19	0.70	1.11	1.66	0.78	1.07	1.96	1.06	1.45	2.78	1.06	1.45	2.88
Old River	1.40	2.42	4.24	2.94	3.71	4.96	3.90	10.87	16.87	8.22	13.82	18.68	8.19	13.09	19.54

The model results indicate that the maximum increase in tertiary effluent percentage at the Contra Costa Water diversion point on Old River (CCWD) would range from 0.4 to 1.0 percent, with higher percentages under the No-action alternative with no barriers and under the CALFED preferred alternative with permanent barriers. The 99<sup>th</sup> percentile value at the CCWD diversion location (exceeded 1 percent of the time) is projected to be 0.5 percent or less tertiary effluent, for all CALFED operational alternatives. At the Clifton Court diversion point for the State Water Project (SWP), the tertiary effluent percentage increase ranges from a maximum of 0.7 percent to a maximum of 1.2 percent under different operations and barrier configurations. The 99<sup>th</sup> percentile values at SWP range from 0.3 to 0.8 percent. For the CVP diversion point, maximum values of percent tertiary effluent increase range from 1.2 to 2.9 percent. The 99<sup>th</sup> percentile values at the CVP intake range from 1.0 to 1.5 percent.

The maximum computed effluent percentage in the Old River at the proposed disposal site (Old River) is 20 % (preferred CALFED alternative with permanent barriers in place). The 99<sup>th</sup> percentile values in the Old River near the discharge point range from 2.4 to 13.8 percent. The maximum percentage again occurs under an alternative when permanent barriers are in place.

The model predicts an increase in the wastewater component at the CCWD diversion point for the preferred alternative relative to the four No-Action alternatives. This increase is due to the relocation of the SWP diversion point (Byron) farther north in Old River nearer the CCWD diversion. Old River water with the highest component of Tracy effluent enters the southern Delta at the discharge point near the head of Old River. The SWP intake relocation draws this water north to the vicinity of the CCWD intake. The model predicts a maximum tertiary effluent component at the Delta-Mendota Canal diversion point (CVP) of 2.8 % and 2.9 % for the no-action and preferred alternatives respectively. The larger percentages occur during periods when permanent barriers would be in place. The CVP receives a larger component of the Old River flow since it captures a disproportionate fraction of the water flowing west in Old River and the Grant Line Canal.

The impact on any conservative parameter associated with the Tracy treated effluent discharge can be estimated from the concentration of the conservative tracer that is assigned to the discharge. The following mass balance equation is utilized to make the conversion from percent treated effluent percentage increment to the increment in concentration of a conservative water quality parameter.

$$C_w = C_a + Q_m * (C_m - C_r)$$

Where:

$C_w$  = new concentration of the location

$C_a$  = ambient concentration at the location

$Q_m$  = fraction of treated effluent at the location

$C_m$  = concentration in the treated effluent

$C_r$  = concentration in the Old River at the Tracy discharge site

The impacts on water quality parameters that are non-conservative may be estimated by including a qualitative assessment of the impacts of the decay rates that influence its concentration.

### Impacts of Treated Effluent on Dissolved Oxygen

The dissolved oxygen simulation was designed to estimate the incremental change in dissolved oxygen that would result from the addition of the City of Tracy discharge. The Delta region experiences low dissolved oxygen levels due in part to oxygen consuming materials entering the region from agricultural returns and from adjacent Delta channels. Poor circulation, exacerbated by the temporary south Delta facilities, appears to contribute to the dissolved oxygen sag in this area.

Carbonaceous and nitrogenous BOD represents the oxygen consuming potential of the treated effluent. The impacts of the proposed treatment plant upgrade and increased rate of discharge on dissolved oxygen levels within the southern Delta were evaluated by comparing simulation results for the two cases: (1) existing BOD and ammonia load and (2) projected BOD and ammonia load for the proposed facility. For the existing case, a 5-day C-BOD of 20 mg/L was assigned to the Tracy treated effluent (permitted average dry weather flow of 9 mgd). A factor of 2.5 was assumed to convert 5-day to ultimate BOD. This conversion factor is associated with the decay rate of 0.1 (base e) [i.e.,  $F = 1/(1 - e^{-0.5})$ ; U-BOD =  $20 * F = 50$  mg/L]. The N-BOD was based on a maximum anticipated ammonia nitrogen concentration of 20 mg/L. A factor of 4.57 was assumed for converting to N-BOD (i.e., N-BOD = 92 mg/L).

For the proposed conditions (16 mgd ADWF), 5-day CBOD concentrations of 6 mg/l and 10 mg/l were assumed for the dry weather and wet weather increments. The resulting ultimate CBOD values were 15 and 25 mg/l. Dry and wet weather ammonia values of 1 and 2 mg/l were assumed, with resulting NBOD values of 4.6 and 9.2 mg/l, respectively. Within the model, a decay rate of 0.1 / day (base e) was assumed for both nitrogenous and carbonaceous BOD.

Oxygen uptake associated with all environmental conditions not attributable to the Tracy treated effluent was represented by an oxygen sink rate. A rate of approximately 2,000 mg/M<sup>2</sup>/day was selected through calibration to lower the computed ambient dissolved oxygen to observed levels. The oxygen simulation is a simplification of oxygen dynamics and is only intended to estimate the relative impacts of the Tracy discharge. It is not intended to assess absolute oxygen levels throughout the Delta.

BOD and dissolved oxygen kinetics are temperature dependent. For this analysis, the following observed monthly temperatures for Old River were assigned to all Delta nodes.

Month	Temperature, C	Month	Temperature, C
January	10	February	12
March	14.5	April	17
May	20	June	22
July	24.5	August	24
September	22	October	18
November	13	December	10

Re-aeration was computed from the inter-tidal hydrodynamics for low wind conditions. A low wind speed of 3 feet per second (fps) was assumed since the primary emphasis of the analysis are the periods of low dissolved oxygen that are associated with periods of low re-aeration. A wind speed of 3 fps is the approximate 10-percentile speed at Stockton.

Each Delta operation alternative was simulated assuming present and future BOD and ammonia loadings corresponding to the existing and future Tracy discharge scenarios. The results of this analysis are provided for three locations in the south Delta: Old River, Middle River and Grantline Canal. The results are illustrated in Figures E-9 to E-13. For all cases, the proposed future Tracy discharge results in improved dissolved oxygen conditions in the south Delta, as compared to existing conditions.

The lowest dissolved oxygen levels occur in Middle River as flows migrate toward the San Joaquin River in the summer. The dissolved oxygen levels near the 5.0 mg/l Basin Plan objective improve by 0.4 mg/l under the proposed discharge. Minimum dissolved oxygen levels in the South Delta are not projected to be less than 5.0 mg/l for the proposed project with upgraded treatment.

#### Impacts of Proposed Discharge on Total Dissolved Solids

Impacts on downstream TDS concentrations were estimated using the results of the far-field modeling analysis. The following results are based on the assumption that the Tracy discharge will increase from 9 to 16 mgd and the TDS concentration in the Tracy discharge will remain constant at 1000 mg/l. The projected (99<sup>th</sup> percentile) incremental changes in TDS at two downstream water system intake locations for which baseline data is available will be as follows:

##### CVP Diversion Point

Wet season (median level of 192 mg/l)

Increase = 8.6 to 12.3 mg/l

Dry season (median level of 324 mg/l)

Increase = 7.6 to 10.9 mg/l

##### CCWD Diversion Point

Wet season (median level of 197 mg/l)

Increase = 2.4 to 3.7 mg/l

Dry season (median level of 376 mg/l)

Increase = 2.1 to 3.3 mg/l

Figure E-9 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd

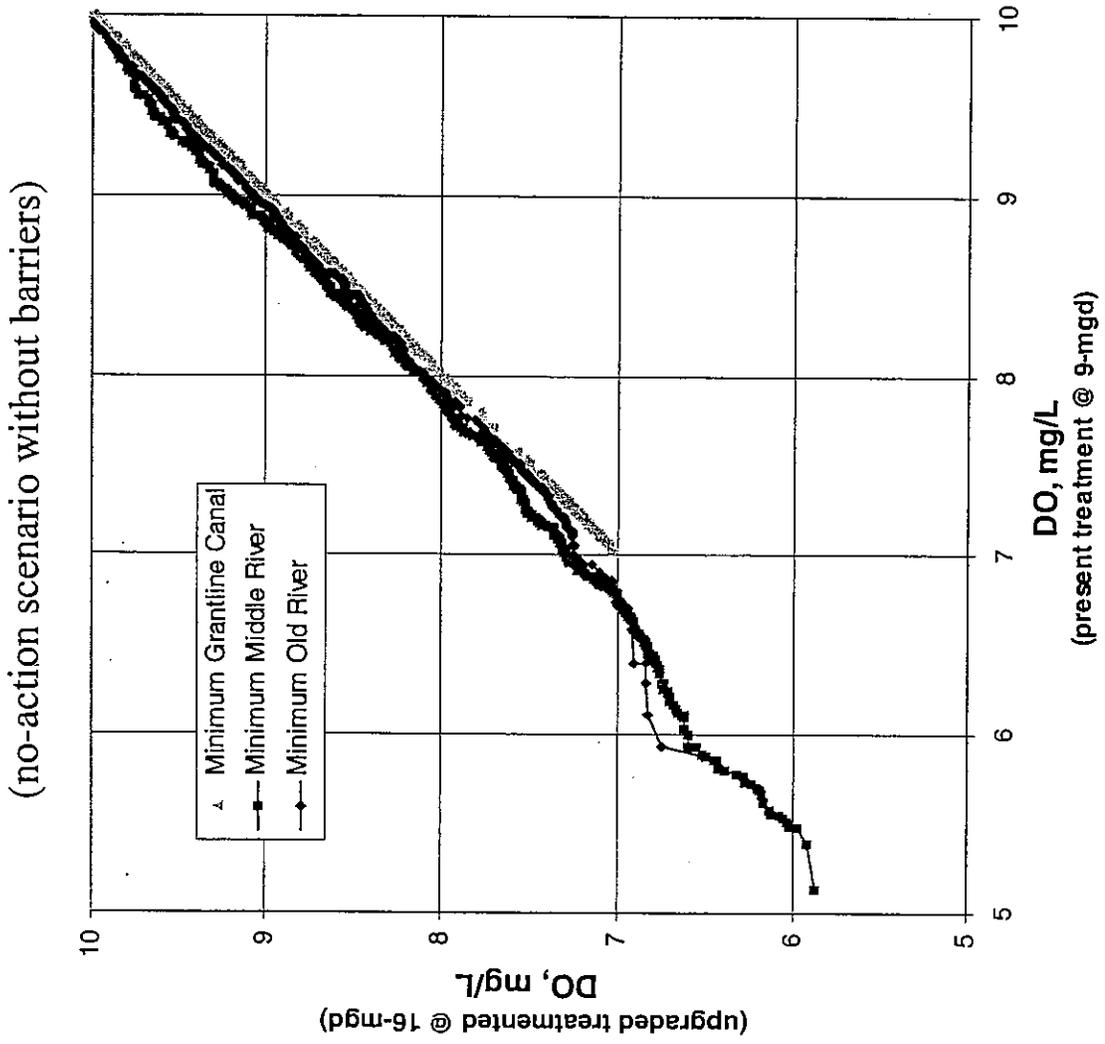


Figure E-10 Comparison of the minimum computed dissolved oxygen is the south Delta, with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd (no-action scenario with Old River fish barrier only)

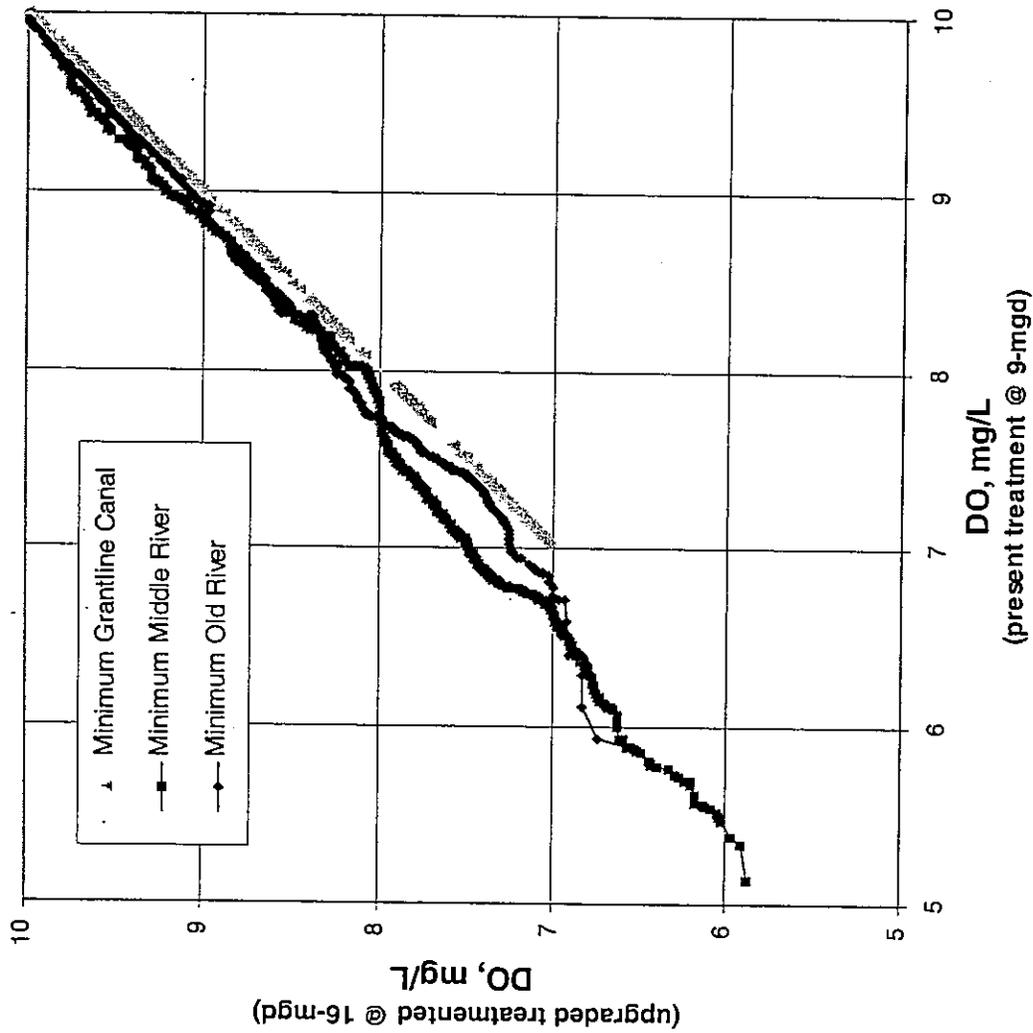


Figure E-11 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd

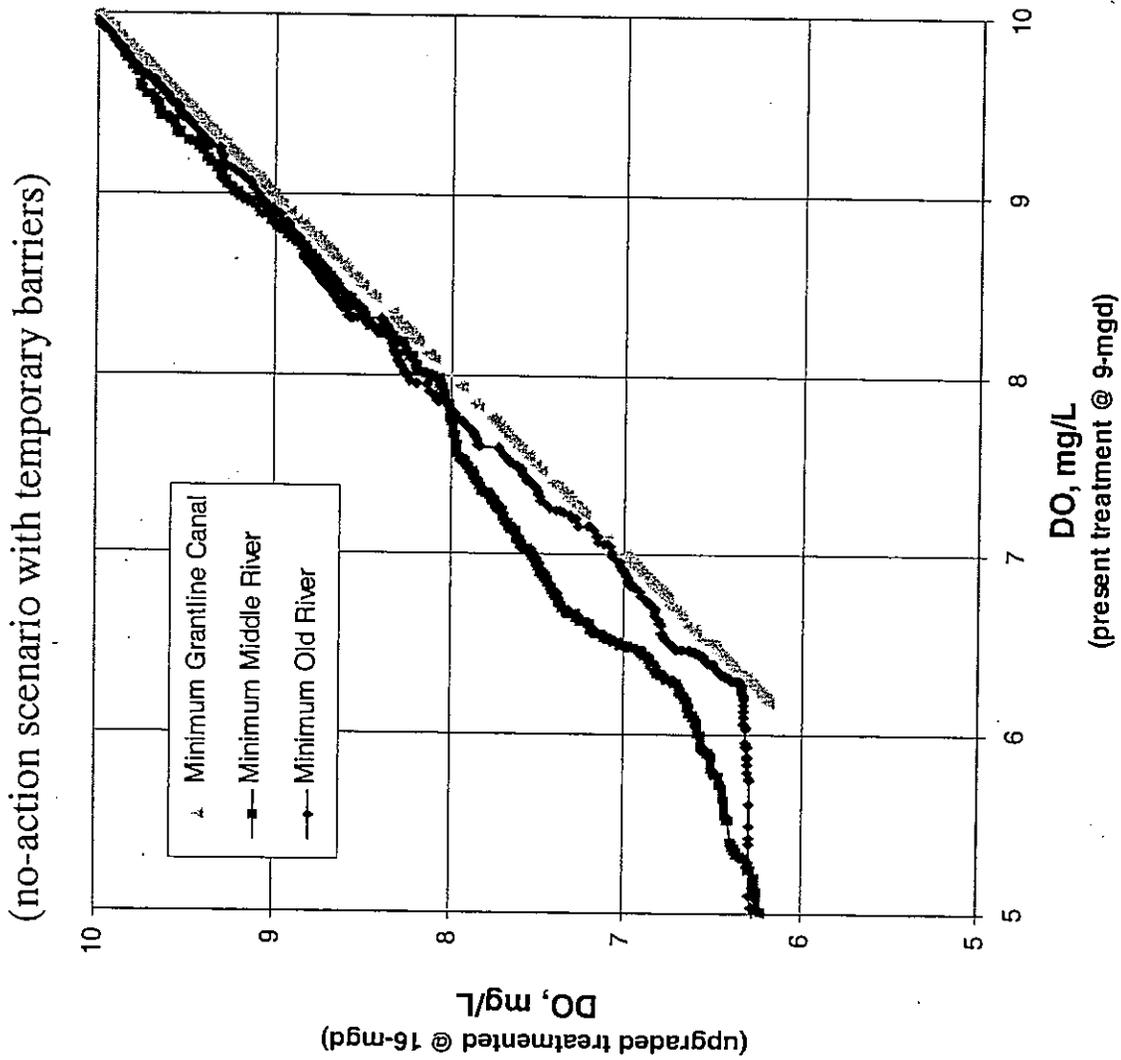


Figure E-12 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd (no-action alternative with permanent barrier)

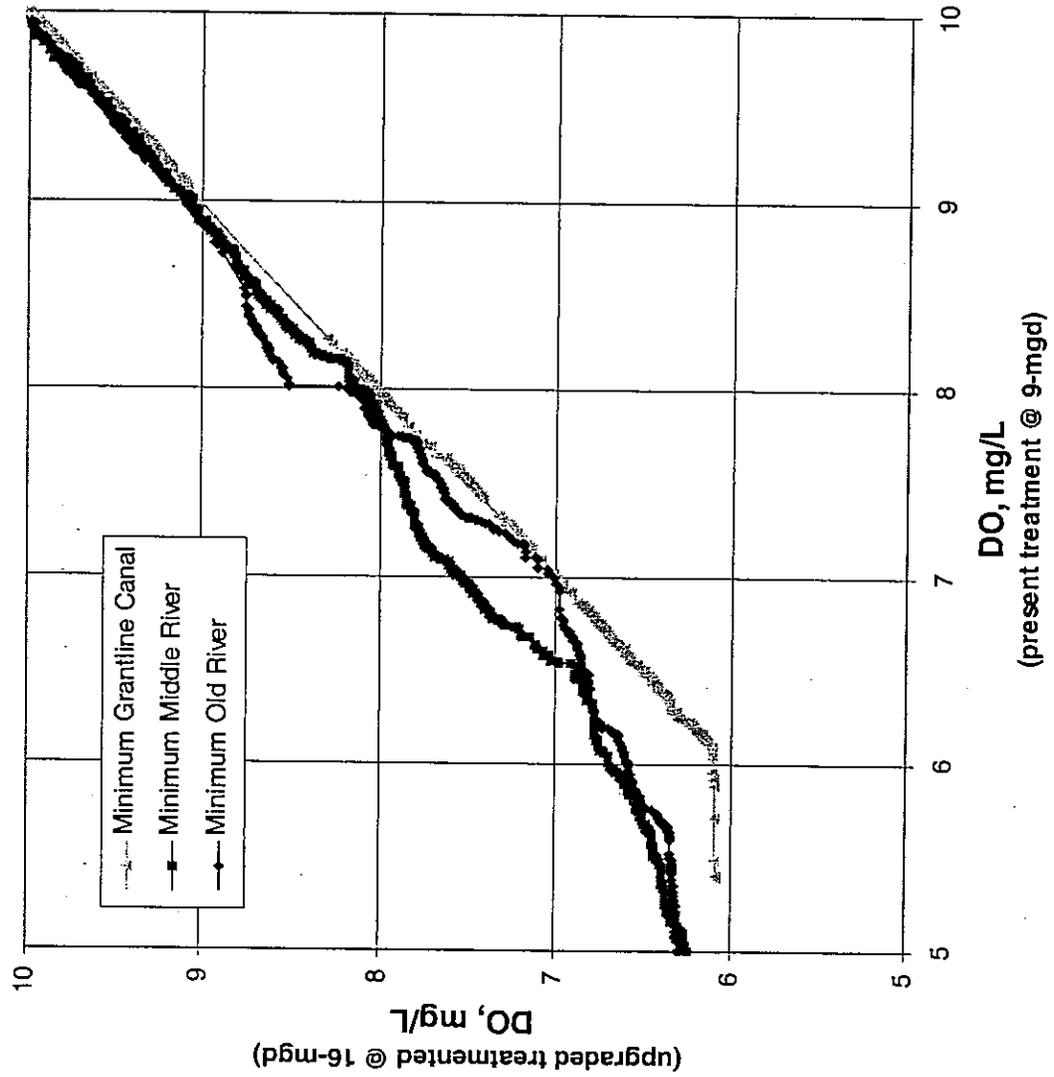
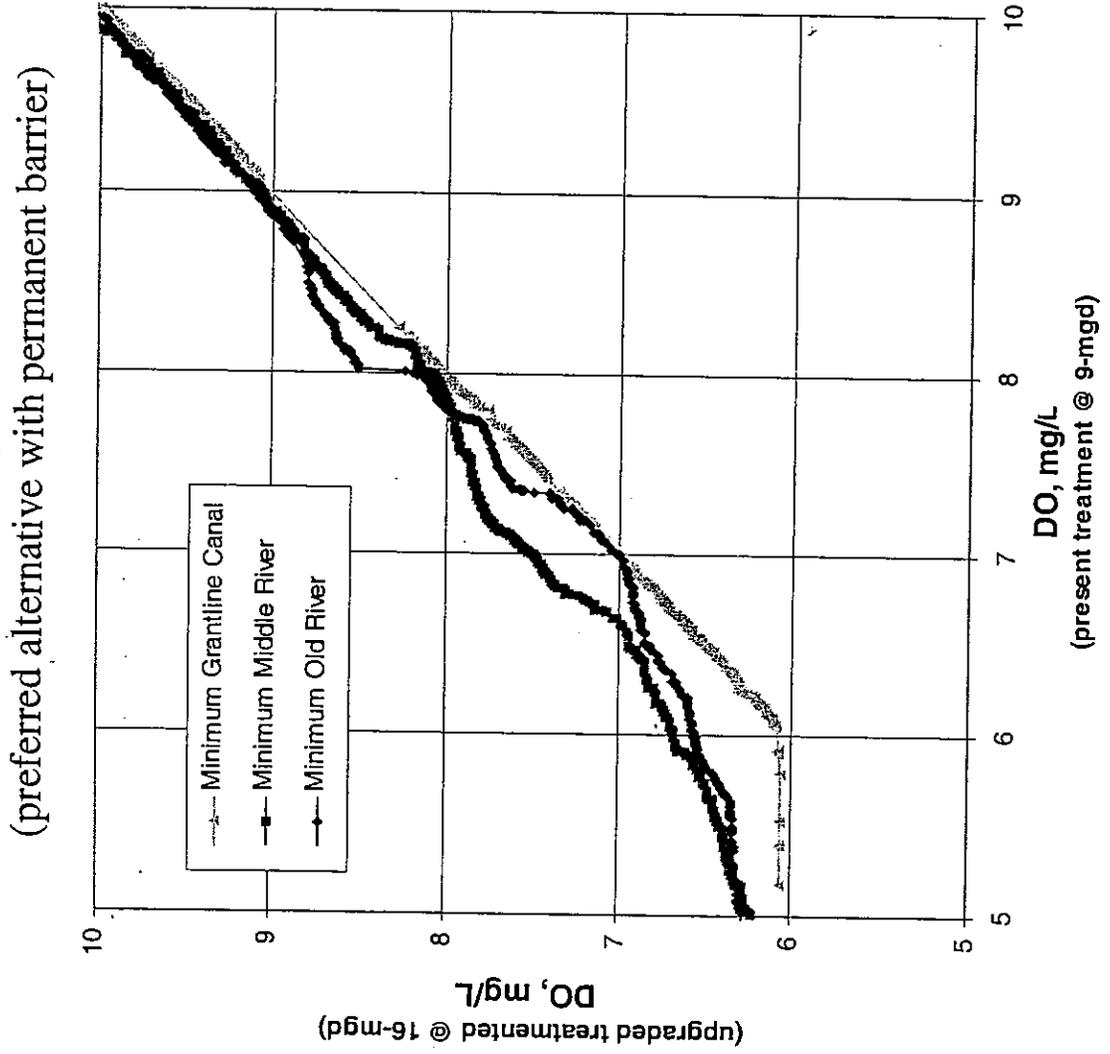


Figure E-13 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd



The range of projected increases is based on the analysis of the five different operational scenarios: Preferred Alternative with permanent South Delta facilities, No Action with permanent facilities, No Action with temporary barriers in place, No Action with Old River barrier in place and No action without barriers.

The incremental changes in TDS levels at the above water supply diversion points will not result in concentrations which approach or exceed the secondary drinking water standard of 500 mg/l. On a percentage basis, the projected changes in the wet season range from 1.2 to 6.4 percent, while the projected changes in the dry season range from 0.6 to 3.4 percent. This increment of change would be difficult to detect through intensive ambient monitoring.

Impacts of proposed discharge on TOC

Based on the results of the far-field modeling analysis described above, the 99<sup>th</sup> percentile incremental changes in TOC levels at the downstream water supply intake locations with baseline data for TOC will be as follows. These projections are based on an assumption of a TOC concentration of 10 mg/l in the treated effluent:

SWP Diversion Point		
0.05 mg/l	Wet season (median level of 2.8 mg/l)	Increase = 0.02 to
0.05 mg/l	Dry season (median level of 3.5 mg/l)	Increase = 0.02 to
CCWD Diversion Point		
mg/l	Wet season (median level of 3.1 mg/l)	Increase = 0.02_ to 0.03_
0.03 mg/l	Dry season (median level of 3.4 mg/l)	Increase = 0.02 to

The projected increases in TOC levels at the above water supply diversion points would not significantly increase ambient TOC levels. Maximum percentage increases predicted in any season or location is 1.0 percent. The predicted changes in TOC are level than analytical detection limits for TOC in natural waters (0.2 to 1 mg/l). Therefore, the predicted change in TOC levels would not be measurable through ambient monitoring techniques.

Impacts of the Proposed Discharge on Pathogens

As described previously, the pathogen content of the proposed discharge will be very low due to the nature of the proposed treatment facilities (filtration and disinfection). Total coliform levels will typically be lower than 2.2 most probable number per 100 milliliters (MPN/100 ml). Removal of pathogens of concern (*Giardia*, *Cryptosporidium* and viruses) is effective with the proposed treatment facilities. The effluent pathogen levels will be lower than pathogen levels that exist in ambient waters. Therefore, the fraction of

Tracy effluent at various locations downstream of the discharge point is projected to reduce pathogen concentrations, by a very small increment (less than 0.3 percent reduction).

### Impacts of the Proposed Discharge on Trace Metals

Impacts on downstream copper concentrations were estimated using the results of the far-field modeling analysis. The following results are based on the assumption that the average copper concentration in the Tracy discharge will be 5 ug/l. The projected incremental changes in median copper at downstream locations for which baseline data is available will be as follows:

CVP Intake Wet season (median level of 2 ug/l)  
Increase = 0.03\_to\_0.04 ug/l

The range of projected increases is based on the analysis of the five different operational scenarios. Based on the analysis of limited copper data, it is not anticipated that ambient levels will approach or exceed water quality objectives for copper in the Delta waterways.

The analytical detection limit for copper in ambient water is 0.5 ug/l. Therefore, the predicted changes in copper associated with the proposed project are not measurable.

### Impacts of the Proposed Discharge on Trace Organics

The far-field model was used to predict impacts of the increased Tracy discharge of 16 mgd at the CVP and CCWD diversion points under various CALFED and barrier scenarios. The trace organics examined in this analysis included three trihalomethanes (chloroform, bromodichloromethane, and dibromochloromethane) which have been detected in the existing Tracy effluent. The most significant concentration changes were observed for chloroform (increases ranging from 0.05 to 0.25 micrograms per liter (ug/l)). These concentrations did not approach or equal the California Toxics Rule standards of 5.7 ug/l for chloroform and were significantly lower than the drinking water standards which are an order of magnitude higher. The predicted changes in the trihalomethanes listed above are not significant. Similar results are predicted for other trace organics which may be detected in the Tracy discharge.

#### Short-term Impacts

Short-term impacts are those occurring in the vicinity of the discharge point, associated either with aquatic life toxicity or aesthetic considerations. Such impacts could be either steady state or intermittent in nature. The near field analysis presented above indicates that, for most parameters, steady state, short-term impacts of the proposed discharge would not be significant. **{Check significance of temperature impacts on fish}**

Intermittent impacts include infrequent episodic excursions from normal treatment plant operation or rare conditions in the receiving water system. In such cases, water quality impacts are of short duration and must be evaluated using different criteria than are applicable to steady state conditions. These excursions may or may not be violations of NPDES permit requirements, depending on magnitude and duration, and may or may not cause significant impacts. The analysis of these episodic, infrequent discharge scenarios is beyond the scope of this EIR evaluation. However, given the insignificance of steady state water quality impacts associated with the proposed discharge, it is not projected that short-term impacts will be significant.

#### Long-term Impacts

Long-term water quality impacts are those resulting from the steady state discharge from the proposed treatment facilities. Except where otherwise noted, most of the water quality issues pertaining to human health are long-term impacts.

The above analysis indicates that the proposed discharge of tertiary effluent will not produce significant adverse long-term impacts on surface water quality.

#### IV. AREAS OF KNOWN CONTROVERSY

A point of ongoing controversy is the significance of minor changes in water quality related to the discharge. Some parties argue that any change in water quality, no matter the magnitude, must be judged to be significant. The opposing point of view, as is taken in this analysis, argues that the magnitude of projected changes must be examined. This viewpoint is supported by the 1992 US Supreme Court decision in *Arkansas versus Oklahoma*, which held that small immeasurable changes in water quality were not precluded by any provision of the Clean Water Act, including antidegradation. This position is also supported by language in the California Water Code, which mandates reasonable protection of beneficial uses and allows that changes in water quality may occur without jeopardizing uses.

A second point of controversy exists regarding the regulatory requirements attached to the Section 303(d) listing of various pollutants. Strict interpretations of Clean Water Act requirements and EPA regulations may indicate that no additional mass loading may be allowed into listed water bodies until a TMDL has been completed. The same logic could lead to a finding of significance for any increase in mass loading for a Section 303(d)-listed pollutant. The counter opinion on this issue is that current regulations do not require such limitations on loadings in advance of the development and adoption of a TMDL. Further, State and federal antidegradation policies do not preclude insignificant water quality changes. State permitting guidance on this matter clearly allows consideration of the magnitude of change in the interpretation of consistency with these policies. As shown in this section, the impacts associated with the proposed discharge are consistent with state and federal antidegradation policies.

## Antidegradation

In increasing the permitted discharge rate by the City of Tracy to the Old River, the Central Valley Regional Board must determine that the increased discharge is consistent with the state and federal antidegradation policies. The NPDES permitting policy issued by the SWRCB (APU 90-4) outlines procedures to be used by the Regional Board in making this determination. The permitting policy describes a tiered analysis which includes an initial assessment of several factors, including the significance of the water quality changes produced by the increased discharge. The policy document clearly states that the Regional Board may find that a lowering of water quality is consistent with the federal and state policies. The Regional Board may determine, based on its best professional judgment regarding available information, that a proposed discharge will not be adverse to the intent and purpose of the state and federal policies. The Regional Board may base its determination on a simple antidegradation analysis.

The NPDES policy document states that a rigorous analysis is not required in the following cases:

1. The reduction in water quality from a proposed discharge is spatially localized (i.e. confined to a mixing zone).
2. The reduction in water quality is temporally limited and will not result in long term deleterious effects on water quality.
3. The proposed discharge will produce minor effects which will not result in a significant reduction in water quality (e.g. a minor increase in volume of discharge of secondary effluent from a POTW).
4. The proposed activity, which may potentially reduce water quality, has been approved in a General Plan for a local jurisdiction and has been adequately addressed in an environmental impact report required under the California Environmental Quality Act (CEQA) and judged to be adequate by the Regional Board.

The findings made by the Regional Board must be summarized in the Fact Sheet for the NPDES permit. The policy document encourages Regional Boards to assess the impacts of various categories of pollutants with appropriate levels of scrutiny (i.e. greater scrutiny for carcinogens, mutagens and teratogens).

The information provided in this chapter is intended to address the above points. Information derived for the water quality impact analysis addresses the spatial extent of water quality changes, the seasonal (dry season versus wet season) changes, the incremental impacts on downstream water quality and the water quality changes that result under various levels of treatment prior to discharge.

The near field water quality analysis of the proposed discharge increase indicates an improvement over existing conditions due to the construction of a second diffuser. Despite these improvements, Thermal Plan requirements will not be met under all conditions (i.e. barrier configurations).potentially significant on temperature levels in the

immediate area of the discharge **{need analysis of impacts on fish}** Impacts on ambient levels of ammonia, trace metals or trace organics are not predicted to be significant. The far field analysis of the proposed discharge increase indicates no significant adverse impacts at downstream locations. Projected incremental changes attributable to the proposed project will not (a) cause observable changes in concentrations of 303(d) listed pollutants or (b) cause non-303(d)-listed constituents to exceed adopted water quality objectives.

The findings of this analysis are that the proposed project is consistent with the State and federal antidegradation policies.

### **Pollutant Reductions Outside the City's Jurisdiction**

#### **Concept**

This concept is often referred to as "pollutant trading" or "pollutant offsets". The approach is to implement activities which would reduce pollutant loadings in sources within the watershed (but outside the local jurisdiction) as a form of compensation for loading produced by the local entity. A number of commenters on the Notice of Preparation have indicated that the City should analyze alternative trading or offset options either as part of the proposed project or as mitigation for the proposed project. Somewhat analogous programs have been established under the Clean Air Act and by the federal wetlands mitigation programs administered by the US Army Corps of Engineers. In California, the water banking system is also similar in concept.

Experience with water quality offsets and trading programs through 1999 has been summarized in a USEPA report. (Environomics, 1999, *A Summary of U.S. Effluent Trading and Offset Projects*, Prepared for USEPA Office of Water, November). As noted in review of the 1999 summary document, the national experience with implementation of trading and offsets is quite limited. Of the 37 programs summarized in the document, less than ten programs have actually implemented some form of trade or offset. Where trades or offsets have been implemented, a formalized system of credit or banking has been established. Most of these trading or offset systems have evolved directly from TMDLs, 303(d) listings or NPDES permit requirements for new sources. A number have involved the formation of a basin wide association or authority as the framework for a trading system.

#### **Status in California**

The two projects in California which are documented in the 1999 summary report are the Grassland Area Farmers Tradable Loads Program and the San Francisco Bay Mercury Offset Program.

The Grassland Program deals with selenium loadings into the San Luis Drain. The program includes a system for 1:1 trades in selenium loadings among participants. The

situation is different than the City faces, in that the Grassland Basin Drainage Management Activity Agreement (July, 1995) has established a numeric cap on selenium loadings, which defines the baseline for trades. The situation is also different in that the agreement provides a structure and procedures for trading (and crediting trades) among the seven irrigation and drainage districts that have signed the agreement.

The San Francisco Bay mercury offset program has been conceptualized but has not been developed or implemented. The program has been considered as part of a mercury TMDL program for the Bay. This program would provide offsets for new or expanded dischargers of mercury, e.g municipalities and industries, through a program where Bay dischargers would implement controls at abandoned mines or other uncontrolled mercury sources. Before offsets are implemented, a system must be developed and adopted which would establish the procedures and requirements for acceptable offset proposals.

In many regards, the Bay area mercury program is analogous to the program the City might be asked to implement under this EIR. The obstacles encountered in the Bay area mercury program are also similar to those that would face the City. These include: (1) reluctance by dischargers to assume Superfund-like legal liability for off-site projects, (2) difficulty in measuring and/or quantifying offsets due to complexities regarding fate, transport and speciation of the pollutant of concern, (3) opposition by environmental groups to any offsets prior to adoption of TMDLs, (4) difficulties in writing NPDES permit language to adequately to define the basis for offset credits, and (5) potential jurisdictional complications.

Action by the City of Tracy to implement offsets under the CEQA process would not provide any assurances of credit under the NPDES program or under future TMDLs in the watershed.

#### Factors which Currently Hinder Offsets

The following limitations affect the feasibility of offset programs.

##### Legal liability

Local agencies may be hindered in the use of offset programs due to the potential legal liability of such actions.

Obligations exist in the Clean Water Act to meet federal water quality requirements in the discharge from pollutant sources. Once improvements at a site are made, "good samaritan" agencies may inherit legal liability for compliance with standards. In Northern California, past precedent for this occurred at the Penn Mine involving the State of California (Central Valley Regional Board) and East Bay Municipal Utility District. These agencies stepped forward and implemented water quality improvement projects at the Penn Mine in Mokelumne County. Both these agencies were successfully sued for failure to provide sufficient improvements so that the waters downstream of the mine

discharges met water quality standards. This example and others have created a significant obstacle for offset programs in California.

#### Reasonable Assurances

A major issue in any offset program involves the provision of reasonable assurances that a proposed out-of-jurisdiction project will (a) be implemented as intended, (b) achieve the predicted load reductions, and (c) achieve predicted changes in ambient water quality, and (d) produce reliable and consistent compliance with water quality standards. One of the current obstacles to the development and implementation of pollutant offset programs is the question of responsibility for such assurances.

If dischargers participating in offset programs are held responsible for the attainment of standards in the affected water body, the programs would not be workable, since offsets are typically only individual components of such an outcome. Similar problems would likely result if participating dischargers carry the burden for specific changes in ambient water quality. Typically, our predictive capability regarding natural systems and sources is not adequate to make such assurances. In many cases, it may even be unrealistic to certify specific load reductions for a given source, based on significant uncertainties regarding control measure effectiveness. Such differences in the ability to provide assurances and the expectations of third parties regarding assurances may impact the feasibility of the offset approach.

#### Absence of program to receive credit under the NPDES permit

In California, no formalized program or system is in place to provide credit for NPDES permit holders who implement offset projects. Without such a credit system, NPDES dischargers find that offset options do not meet critical regulatory needs. Some concepts regarding this topic have been put forth this year in draft guidance from USEPA Region IX, aimed at interim controls on 303(d) listed pollutants prior to adoption of TMDLs. The concept consists of a "banking" system, in which credits or debits in loadings above a set loading value will be accounted a defined period (e.g. for the life of a five year NPDES permit). At the end of the specified period, debit loadings must have been "offset" by reductions in other sources. As part of this approach, an offset trading ratio must be determined which accounts for location of the offset project, bioavailability issues, certainty of effectiveness of offset, impact of reduction on local beneficial uses, etc..

From the City's standpoint, the above information indicates that offset options are not feasible components of the proposed project at this time. The legal framework and system is not in existence to provide adequate certainty to the City that the implementation of offsets will be fairly credited and that the City will not inherit significant legal liability as the result of performing offset projects. It is therefore infeasible for the City to include such project elements as part of the proposed project.

## Source Control

The concept of source control is to minimize or eliminate pollutant loadings at the source. In wastewater collection systems, source control is aimed at the control of sources prior to entry into the collection system. Source control is included in the NPDES permitting process in several forms, either as formal industrial pretreatment programs or as community-based pollution prevention programs.

### Industrial pretreatment

The City's NPDES permit stipulates that the City must comply with Pretreatment Standards promulgated under Sections 307(b), 307(c), and 307 (d) of the Clean Water Act. Additionally, the City is required to perform the pretreatment functions required under 40 CFR Part 403, which includes:

- adopting legal authority to implement and enforce an industrial pretreatment program;
- enforcing pretreatment standards stipulated under 40 CFR 403.5 and 403.6;
- implementing compliance procedures required under 40 CFR 403.8(f)(2); and
- providing adequate funding and personnel for implementation and enforcement of the program.

The City is required to implement the necessary programs and controls to ensure that the following wastes are not discharged to the treatment system:

- wastes which create a fire or explosion hazard;
- wastes which will cause corrosive structural damage to the treatment works;
- wastes which cause obstruction to flow in sewers or cause interference with proper operation of the treatment works;
- wastes which cause inhibition or disruption in the treatment works leading to treatment process upset and loss of treatment efficiency;
- heat in amounts that inhibit or disrupt biological activity or that raise influent temperatures above 40o C (104o F);
- oil or oil products which cause interference or pass through;
- wastes which result in the presence of toxic gases, vapors or fumes in a quantity that may cause acute worker health and safety problems;

- wastes that flow through the system in quantities or concentrations that cause a violation of effluent limits

The City submits an annual report to the Regional Board and EPA describing pretreatment activities over the reporting period. The report lists all industrial users regulated under the program and documents compliance with local limits and other provisions of the pretreatment program.

The City of Tracy has a USEPA and Regional Board-approved source control and local limits program in place for industrial and commercial contributors to their wastewater collection system. Currently, the City regulates {number}??? industrial/commercial users under its pretreatment program.

The City has local limits in place for {trace metals, cyanide, chlorinated pesticides, and additional trace organics}???. These local limits are established at levels which will avoid industrial discharge-induced violations of the NPDES permit effluent limits.

#### **Pollution prevention**

The City does not currently administer a pollution prevention program to control specific pollutants of concern. Such programs are required under the provisions of Senate bill (SB 709) and the State Implementation Plan for the California Toxics Rule. The determination of need for such programs will be established under the NPDES permit renewal process.

Experience to date in other programs has shown moderate levels of success (on the order of 10 to 20 percent maximum reduction in influent loadings) in the application of pollution prevention to specific pollutants. Levels of reduction in effluent have been less than influent reductions.

#### **V. MITIGATION MEASURES**

The proposed project includes a number of features which will minimize the need for additional mitigation. These facilities include tertiary filters, nitrification and denitrification facilities, an upgraded disinfection system, installation of a second high-rate diffuser to rapidly mix the proposed tertiary effluent into the Old River.

In addition, for pollutants on the 303(d) list which do not currently meet water quality standards on a consistent basis, the City will participate in and be compelled to implement projects under a TMDL, together with other dischargers, to bring the Delta waterways into compliance with standards. The City will also be required to implement source control activities under its NPDES permit to address pollutants of special concern.

Based on the above, supported by the findings in the water quality impact evaluation, the need for additional mitigation for surface water impacts has not been clearly established.

## VI. CUMULATIVE IMPACTS

This section addresses the cumulative impacts of the proposed project and other related projects in the Sacramento-San Joaquin Delta. Cumulative impacts are the direct and indirect impacts of a proposed project considered in combination with the impacts of past projects, other current projects and reasonably foreseeable future projects. CEQA provides some general guidelines for the assessment of cumulative impacts as follows:

- “Cumulative impacts refer to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts.
- (a) The individual effects may be changes resulting from a single project or a number of separate projects.
  - (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.”
- (Section 15355 of the CEQA Guidelines; as referenced in Bass et al., 1999).

The assessment of cumulative impacts takes into account not only impacts identified as significant, but also those identified as less than significant for individual projects that may become significant in a collective sense when considering the co-occurrence of multiple projects.

Criteria for selecting related projects for the cumulative impact analysis are the following:

- The project must be sufficiently related to the proposed project either by location in the Sacramento-San Joaquin Delta region, or by production of similar types of impacts on similar resources.
- The project must be reasonably foreseeable.
- The specifics of project design or operation must be known or predictable.

Projects that fit these criteria are the following:

- CALFED Bay-Delta Program
- South Delta Improvements Program
- South Delta Temporary Barriers Project

- Delta Wetlands Project
- Water Hyacinth Control Program
- *Egeria densa* Control Program
- City of Manteca Wastewater Quality Control Facility (WQCF) Expansion
- City of Lathrop Wastewater Treatment/Recycling Plant (WRP-1) Expansion
- Sacramento Regional County Sanitation District (SRCSD) Expansion
- State of California TMDL Program

This assessment utilizes information from EIRs and other public documents that disclose the environmental effects of the projects listed above, as well as material on the impacts of the proposed project previously presented in Section III, Analysis of Water Quality Impacts. A brief description of each program is provided, followed by a summary of possible water quality impacts associated with the project. A brief summary of the potential water quality impacts of the proposed project to the related projects is presented as well. Finally, a discussion of the potential cumulative water quality impacts of all projects combined is presented.

### Related Project Summaries

#### **CALFED Bay-Delta Program**

The CALFED Bay-Delta Program is a joint State-federal effort to develop long-term solutions to problems of the Sacramento-San Joaquin Bay-Delta system. The purpose of the Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system (CALFED, 2000). To achieve this purpose, CALFED will concurrently address problems of the Bay-Delta system within four critical resource categories: ecosystem quality, water quality, water supply reliability, and levee system integrity. The CALFED Program was divided into three phases, starting with development of a mission statement, guiding principles and alternatives. Phase I was completed in August 1996. In the second phase of the Program, preliminary alternatives were refined, a comprehensive programmatic environmental review was conducted, and a Draft Programmatic EIS/EIR was released in March 1998. The Draft Programmatic EIS/EIR was rewritten after a Preferred Program Alternative was identified, and the revised draft was released in June 1999. Following a public comment period that included sixteen public hearings, the Final Programmatic EIS/EIR was released in July 2000 (CALFED, 2000). Phase II concluded in August 2000 with a Record of Decision and Certification (ROD/CERT). During Phase III, the CALFED agencies will implement the Preferred Program Alternative. The first seven years of Program implementation will be guided by the Implementation Plan. This phase will include any necessary studies and site-specific

environmental review and permitting of individual components of the preferred alternative (CALFED, 2000). Due to the size and complexity of the Program alternatives, implementation is likely to take place over a period of 30 years or more.

The Program consists of eight elements (or programs) that form the foundation for overall improvement in the Bay-Delta system. The goal of the Ecosystem Restoration Program is to improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta system to support sustainable populations of diverse and valuable plant and animal species. The aim of the Water Quality Program is to achieve continuous improvements in the quality of the waters of the Bay-Delta system. The Levee System Integrity Program focuses on improving levee stability to benefit all users of Delta water and land. The Water Use Efficiency Program includes actions to assure efficient use of existing and any new water supplies developed by the Program. The Water Transfer Program proposes a framework of actions, policies, and processes that collectively will facilitate water transfers and the further development of a statewide water transfer market. The Watershed Program provides financial and technical assistance to local watershed programs that benefit the Bay-Delta system. The Water Storage Program aims to use groundwater and/or surface water storage to improve water supply reliability, provide water for the environment at times when it is needed most, provide flows timed to maintain water quality, and protect levees through coordinated operation with existing flood control reservoirs. Finally, the goal of the Water Conveyance Program is to improve water supply reliability, protect and improve Delta water quality, improve ecosystem health, and reduce the risk of supply disruption through modifications in water conveyance.

The Preferred Program Alternative consists of a through-Delta conveyance approach, coupled with ecosystem restoration, water quality improvements, levee system improvements, increased water use efficiency, improved water transfer opportunities, watershed restoration, and a Water Management Strategy that includes an integrated storage program. The final programmatic EIR/EIS (CALFED, 2000) identifies the following as benefits of the Preferred Alternative that likely will have a positive effect on water quality in the Sacramento-San Joaquin Delta:

- Modifying the timing and magnitude of flow to restore ecological processes and to improve conditions for fish, wildlife, and plants in the Bay-Delta system.
- Reducing the long-term loads and impacts of bromide, total organic carbon, pathogens, nutrients, salinity, and turbidity.
- Reducing the impacts of pesticides.
- Reducing the long-term impacts of trace metals, mercury, and selenium.
- Modifying existing Delta conveyance systems for improved water supply reliability and water quality, improved ecosystem health, and reduced risk of supply disruption due to catastrophic breaching of Delta levees.

Potential adverse water quality impacts of the Preferred Alternative, identified in the Revised EIR/EIS (CALFED, 2000), include the following:

- Increases in concentrations of bromide, salinity, total dissolved solids, and total organic carbon in the Delta.
- Increased diversion of water from the Delta.
- Increased water diversions from the Delta, reducing outflow to the Bay and changing Bay salinity.
- Releases of inorganic or organic suspended solids, or toxic substances into the water column in the Delta.
- Increased water temperatures and decreased dissolved oxygen concentrations in the Delta.
- Potential decreased in-stream water quality from reduced in-stream flows associated with new water storage facilities.
- Possible increases in salinity (expressed as EC) in localized areas in the central Delta.

#### **South Delta Improvements Program (SDIP)**

The purpose of the South Delta Improvements Program (SDIP) is to improve the reliability of the existing State Water Project facilities and operations within the south Delta, while ensuring that water of adequate quantity and quality is available for diversion to beneficial uses within the South Delta Water Agency's service area. The Program is also designed to contribute to the restoration of the ecological health of aquatic resources in the lower San Joaquin River and south Delta (DWR, 2000b). Long-term program components include flow control structures, a fish control structure, increased diversion capacity into Clifton Court Forebay and dredging of Old River. The two flow control structures, one each at Middle River and Old River will have radial gates that raise during the flood tide and drop during the ebb tide to prevent water levels upstream of the structures from receding. Both flow control structures will allow flows to pass freely during the periods of natural or regulated high flow, when water levels are maintained without the need for flow control. The operation of the flow control structures will vary over the course of the irrigation season.

The proposed Old River fish control structure would be located at the confluence of the head of Old River and the San Joaquin River. The fish control structure would be operated from October through November and from April 16 through May of each year except during periods of high San Joaquin River flows. The operations during the fall would be aimed toward improving the dissolved oxygen levels along the portion of the San Joaquin River from its confluence with the head of Old River downstream to the Port

of Stockton. The operations during the spring would be aimed at enhancing the survival of emigrating San Joaquin River salmon smolts by lessening the chances of exposure to the influence of project and local diversions, which occur in the south Delta during this time. The capacity to increase water diversions into Clifton Court Forebay would be accomplished through the construction of a second intake structure. Both the old and new intakes would be required to utilize the full pumping capacity of the existing pump units at the Harvey O. Banks Delta Pumping Plant under the variety of possible physical conditions in the Delta. The new intake structure would include a 200-foot by 60-foot by 28-foot concrete structure with six steel radial gates, and would take approximately 30 months to construct. The new intake is estimated to divert a peak flow of 30,000 cubic feet per second (cfs) during the flood tide and an average flow over the tidal cycle of about 1,000 cfs. The dredging of Old River from the Western Canal to the confluence of Old River and north Victoria Canal is also necessary in order to realize the full pumping capability of the Banks Pumping Plant, while avoiding sediment movement and scouring during peak diversion periods. Approximately 1.25 million cubic yards of material would be dredged from a 4.9-mile reach of Old River to increase the channel capacity north of the new intake. The dredging operation period would last approximately 36 months with dredging only taking place between August and October, to minimize impacts to fish.

Potential water quality impacts associated with this project are described in Entrix (1996) and include the following:

- Changes in salinity patterns in the Delta.
- Slight increase in trihalomethane formation potential in export water.
- Temporary increase in trihalomethane formation potential in dredge disposal area due to mobilization of organic matter in soils.
- Temporary increases in turbidity during construction of barriers.

#### **South Delta Temporary Barriers Project (TBP)**

A temporary measure associated with SDIP is the South Delta Temporary Barriers Project. Objectives of this program are (1) to increase water levels, circulation patterns, and water quality in the south Delta area for local agricultural diversions; and (2) to improve operational flexibility of the State Water Project to help reduce fishery impacts and improve fishery conditions (DWR, 2000b). The Temporary Barriers Project was initiated to better determine the effects of installing permanent barriers in the south Delta. A five-year project began in 1991 to test a facsimile of the proposed south Delta barriers. However, due to the varying hydrological conditions and hydrodynamic patterns in the Delta, as well as concerns for endangered species, the actual number of barriers installed and the installation schedule have been different each year of the program. The TBP is being monitored to document and analyze trends in fish and vegetation populations in the

area during the operation of the program and to help verify computer-modeling efforts for the south Delta.

Potential water quality impacts associated with this project are described in Entrix (1996) and include the following:

- Changes in salinity patterns in the Delta.
- Slight increases in trihalomethane formation potential in export water.
- Temporary increases in turbidity during construction of barriers.

### **Delta Wetlands Project**

The Delta Wetlands Project (DW) involves diverting and storing water on two Sacramento-San Joaquin Delta islands (Bacon Island and Webb Tract, termed "reservoir islands") for later discharge for export sales or to meet outflow requirements for the San Francisco Bay/Sacramento-San Joaquin Delta estuary (JSA, 1995). During periods of non-storage, shallow water would be managed within an inner levee system on the reservoir. The project also involves seasonally diverting water to create and enhance wetlands and to manage wildlife habitat on two Delta islands (Bouldin Island and Holland Tract, referred to as "habitat islands"). These islands would be operated to support wetlands and wildlife habitat. Additionally, recreation facilities would be constructed along the perimeter levees on all four DW islands. To operate the project, DW would improve and strengthen levees on the four islands and install additional siphons and water pumps on the perimeters of the reservoir islands.

The initial water storage capacity of the reservoir islands would be 238 thousand-acre-feet (TAF) and increase to 260 TAF in 50 years due to soil subsidence. The mean annual diversion and discharge is estimated to be 222-225 TAF and 180-202 TAF, respectively. Both reservoir islands could be filled and emptied in approximately one month. The Delta Wetlands diversion could occur in any month but would occur only when the volume of allowable water for export is greater than the permitted pumping rate of the export pumps.

Potential water quality impacts associated with this project are described in Jones and Stokes (1995) and include the following:

- Increases in salinity, DOC, trihalomethane concentrations, and changes in other water quality variables.
- Increases in pollutant loading in Delta channels.

## Water Hyacinth Control Program

The California Department of Boating and Waterways (DBW) has conducted an ongoing water hyacinth control program using chemical treatment methods since 1985. The objective of the chemical control is to lower the overall quantity of water hyacinth in the Delta to below problem levels. An ongoing water quality monitoring program has been conducted in conjunction with the chemical spraying. This program consists of three long-term monitoring stations located at strategic sites in the Delta, as well as regular point-of-application monitoring. DBW report that most of the samples analyzed to date contain no herbicide residue. Additionally, herbicide concentrations that have been detected have been well below potable water criteria established by the U.S.

Environmental Protection Agency Office of Groundwater and Drinking Water (DBW, 2000). The success of the Water Hyacinth Control Program has been demonstrated by the elimination of water hyacinth at many locations in the Delta. DBW state that there are now very few problems associated with the floating aquatic weed in terms of its impairment of recreation or agriculture in the Delta. Most marinas are now hyacinth-free and large mats of the plant no longer impact irrigation pumps.

Potential water quality impacts associated with this project are described in Boating and Waterways Draft *Egeria densa* Control Program EIR (2001) and include the following:

- General decrease in drinking water quality due to low level residual concentrations of herbicides in the water column.
- Localized decreases in dissolved oxygen concentrations associated with the biochemical oxygen demands of decaying plant material.

## *Egeria densa* Control Program

The signing of Assembly Bill 2193 (January 1997) designated the California Department of Boating and Waterways as the lead agency in charge of developing a control program for the aquatic weed *Egeria densa* (*Egeria*) in the Sacramento-San Joaquin Delta, its tributaries, and the Suisun Marsh. *Egeria* is a non-native submerged aquatic weed that grows in dense mats throughout the Delta. In the 40 years since *Egeria* was introduced to the Delta it has grown to infest approximately 3,900 surface acres, or eight percent of the 50,000 surface acres of Delta waterways. No *Egeria* has been reported in the Suisun Marsh. In March 2000, DBW released a Draft Environmental Impact Report for the *Egeria densa* Control Program (EDCP), which states the program's primary objective as the improvement of navigation in currently infested waterways of the Delta by reducing the growth and spread of *Egeria* (DBW, 2001). DBW proposes to accomplish a reduction in the growth and spread of the aquatic weed by implementing a control program that features the simultaneous deployment of two components: a five-year program utilizing non-copper-based aquatic herbicides (Reward and Sonar) and mechanical harvesting, and a two-year research trial utilizing a copper-based aquatic herbicide (Komeen).

DBW proposes to treat a relatively small portion of the total surface area of Delta waterways, but nearly half of the Delta water body surface acres that are infested with *Egeria*. DBW intends to treat 1,733 surface acres per year, or three percent of total Delta waterways, but nearly 44 percent of the area infested with the aquatic weed. The EDCP would rely on the herbicide Reward (diquat dibromide) to provide three fourths of the weed control in the treated waterways. Sonar (fluridone) would be applied only to *Egeria* in slow moving backwater areas, while mechanical harvesting would be used for emergencies in order to gain immediate control of the weed in a particular area. Under the Two-Year Komeen Research Trials, Komeen (active ingredient, eight percent chelated elemental copper) would be applied to three 50-acre sites twice per year for two years, resulting in treatment of 150 acres per year for a period of two years.

Potential water quality impacts associated with this project are described in Boating and Waterways Draft *Egeria densa* Control Program EIR (2001) and include the following:

- Short-term, herbicide-based toxicity in the water column due to the application of Reward, Sonar, and Komeen.
- General decrease in drinking water quality due to low level residual concentrations of Reward, Sonar, and Komeen in the water column.
- Localized increases in sediment copper concentrations due to the application of Komeen.
- Increases in trihalomethane formation potential due to increases in dissolved organic compounds released into the water column by decaying plant material.
- Localized decreases in dissolved oxygen concentrations associated with the biochemical oxygen demands of decaying plant material.
- Localized increases in water column turbidity due to mechanical harvesting.

#### **City of Manteca Wastewater Quality Control Facility (WQCF) Expansion**

The Manteca Wastewater Quality Control Facility (WQCF) is a regional plant serving the cities of Manteca and Lathrop in southern San Joaquin County. The facility is a combined biofilter-activated sludge plant producing secondary effluent that is either land-applied for agricultural irrigation or discharged to the San Joaquin River upstream of the Mossdale Bridge. The facility has undergone two major renovations in the last 15 years with the most recent expansion project completed in 1992. Although operating below its current design capacity, all remaining capacity has been committed to short-term development within the existing service area. Based on current allocations, the capacity of the WQCF is expected to be reached within 2-3 years (Years 2000-2001). The Phase III/IV Expansion Project (Project) is designed to increase the WQCF capacity along with improving solids handling processes, developing on-site nitrification-denitrification

facilities, and amending the General Plan to enable land use and zoning re-designation of a 5.6-acre parcel from Light Industrial to Public/Quasi Public (EDAW, 2000).

The current design capacity of the Manteca WQCF is 6.95 million gallons per day (mgd) average daily wastewater flow (adwf). Through November 1998, plant flows have averaged approximately 5.6 mgd divided as follows: City of Lathrop: 0.7 mgd; City of Manteca: 4.9 mgd. Based on existing capacity commitments and projected growth within the service area, a Phase III expansion in plant capacity to 9.87 mgd is proposed. This increase in plant capacity is expected to meet the wastewater treatment needs of the service area through 2012. The Project includes the expansion of the plant aeration facilities and the construction of nitrification/denitrification facilities. The Project will also include the conversion of the existing plant chlorination-dechlorination disinfection process to an ultraviolet light (UV) system. To improve solids handling operations at the WQCF, construction of a new anaerobic digester-cogeneration system, mechanical dewatering facility, and biosolids storage area are also scheduled under the Phase III/IV Project (EDAW, 2000). Construction of the Project is anticipated to begin in fall 2001 and be completed in summer 2002.

Potential water quality impacts associated with the WQCF Phase III/IV expansion are described in the project's Draft Environmental Impact Report (EDAW, 2000) and include the following:

- Localized, near-field increases in San Joaquin River water column and surface water temperatures due to proposed effluent discharge.
- Localized, near-field increases in ammonia, turbidity (total suspended solids), trace metals, and trace organics concentrations in the San Joaquin River due to proposed effluent discharge.
- Far-field increase in dissolved oxygen concentration in the San Joaquin River due to proposed nitrification and denitrification of effluent discharge.
- Far-field increase in total dissolved solids (TDS) concentration of less than 0.01% in the San Joaquin River due to proposed effluent discharge.
- Far-field increase in total organic carbon (TOC) concentration of less than 0.001% in the San Joaquin River due to proposed effluent discharge.
- Localized, short-term increase in total dissolved solids (TDS) and organics concentrations in storm water due to project construction activities (grading, excavation, and use of fuels and chemicals).

#### **City of Lathrop Wastewater Treatment/Recycling Plant (WRP-1) Expansion**

The City of Lathrop currently treats and disposes its wastewater at two facilities: a City-owned treatment plant located in the Crossroad Business Park (i.e., Wastewater

Treatment/Recycling Plant No. 1 (WRP-1)), and the Manteca Water Quality Control Facility (WQCF). The City presently generates approximately 0.8 million gallons per day (mgd) of wastewater. Approximately 95% of this wastewater is conveyed to the Manteca WQCF, with the remainder going to WRP-1. The City of Lathrop has a contractual relationship with the City of Manteca whereby 14.7% of the Manteca WQCF's existing and future expanded capacity is allocated for Lathrop flows. The design capacity of the existing Manteca WQCF is 6.95 mgd, thus providing Lathrop with a capacity of 1.02 mgd (14.7% of 6.95 mgd). Flows from Lathrop to Manteca currently average approximately 0.77 mgd, or 0.25 mgd less than the allocated capacity. Approximately 0.03 mgd of wastewater generated within the City of Lathrop is treated at the City's existing WRP-1, with a design capacity to process an average daily flow of 0.6 mgd. Disinfected and nitrified effluent from the plant is discharged to three 2.4-acre evaporation/percolation (E/P) ponds for disposal. Actual percolation rates observed in the E/P ponds have been much lower than originally anticipated. A 1998 geotechnical investigation of the E/P ponds found that the lower infiltration rates were primarily due to a lower transmissivity of the underlying aquifer than originally reported. The investigation concluded that the existing E/P ponds could accommodate a maximum discharge of approximately 0.06 mgd, less than one-third of the originally anticipated 0.2 mgd collective capacity of the three E/P ponds. Since this flow is significantly lower than anticipated, the City is investigating disposal options that include obtaining additional land for percolation, relocating the existing disposal areas, and /or discharging to the San Joaquin River (Nolte, 2000).

In addition to the realized reduced capacity of the E/P ponds, the City of Lathrop has experienced rapid residential and industrial growth during the past several years, a situation that necessitates an increased capacity to process wastewater. The City also has approved large-scale community plans that have the potential to add substantially to area growth. The City's population is approaching 10,000 and the West Lathrop Specific Plan (WLSP), which was adopted in February 1996 and is the most substantial development planned in the City, would add up to an additional 30,000 residents. All of these factors necessitated the update and revision of the City's existing Water Master Plan (1992) and Wastewater Facilities Master Plan (1996). Additionally, the City has made a commitment in its General Plan to maximize the use of reclaimed wastewater. For these reasons, the City has prepared a combined Master Plan that addresses water, wastewater and reclaimed wastewater (Nolte, 2000). The Wastewater Treatment and Disposal Plan section of the Master Plan document discusses future wastewater disposal methods available to the City and identifies a recommended disposal strategy that integrates the use of reclaimed water, the discharge of treated effluent to surface water, and the conveyance of wastewater to the Manteca WQCF.

The purpose of the proposed City of Lathrop WRP-1 expansion project is to provide adequate wastewater treatment capabilities sufficient to treat wastewater flows that would be generated by existing and planned future populations within the City of Lathrop service area. At build-out, the City of Lathrop is projected to generate approximately 11.5 mgd of wastewater. The main component of the City's integrated wastewater disposal strategy is the maximized use of recycled water on 1,022 acres of irrigated land

within the City. Once the recycled water demand is met, the City would maximize the use of its allocated capacity at the Manteca WQCF (At build-out, the City would discharge 2.2. mgd to the Manteca WQCF. This represents 0.75 mgd above the current Lathrop allocation under the Manteca WQCF Phase III/IV Expansion Project). Lastly, when the recycled water demand and the Manteca WQCF allocation have been met, the City would discharge the remaining treated effluent to the San Joaquin River. The proposed project includes a number of features designed to minimize or eliminate the impact of treated effluent discharge on surface water quality. A tertiary treatment system, including nitrification/denitrification, coagulation, filtration, and ultraviolet light disinfection, will be employed to achieve treated effluent of sufficient quality to be suitable for unrestricted use as per California Department of Health Services criteria. Disinfected, tertiary recycled water not used for public and commercial landscape irrigation is proposed for discharge to the San Joaquin through a high-rate diffuser system that will rapidly mix the treated effluent with river water.

Potential surface water quality impacts associated with this project are described in the Notice of Preparation of a Program Master Environmental Impact Report for the Water, Wastewater and Reclaimed Wastewater Master Plan for the City of Lathrop (Lathrop, City of, 1998) and include the following:

- Minor impacts to surface water quality of the San Joaquin River. A description of potential water quality impacts will be provided in the forthcoming Draft Environmental Impact Report for the project due for public review in spring 2001. Effluent from the expanded wastewater treatment/recycling plant will be required to comply with local, State, and federal standards, and therefore should not jeopardize the protection and enhancement of existing and potential beneficial uses.

### **Sacramento Regional County Sanitation District WWTP Expansion**

The existing SRCSD WWTP is designed for an average dry weather flow of 181 mgd. Existing treatment processes include primary sedimentation, pure oxygen activated sludge with secondary clarification (secondary treatment), chlorination/dechlorination and discharge to the Sacramento River near Freeport through a high-rate diffuser. The discharge to the river is controlled to maintain a minimum instantaneous dilution of 14 to 1. Typical average dilutions during critical dry periods exceed 30 to 1. Based on population growth estimates within the SRCSD service area, a projected average dry weather flow of 218 mgd is expected by the year 2020. SRCSD has completed a wastewater treatment master planning process to explore alternative treatment and disposal options. The master plan recommendations are to expand the existing regional treatment system and continue discharge to the Sacramento River.

Construction of the expansion project is anticipated to begin in 2003 and be completed in summer 2006.

Potential water quality impacts associated with the SRCSD WWTP expansion are described in the Master Plan (Carollo, 2001) and include the following:

- Localized, near-field increases in Sacramento River water column temperatures due to proposed effluent discharge.
- Localized, near-field increases in ammonia, trace metals, and trace organics concentrations in the Sacramento River due to proposed effluent discharge.
- Minor far-field increases in concentrations of total dissolved solids (TDS), TOC, and trace elements in the Delta waters due to proposed effluent discharge.

The location of the SRCSD discharge point is sufficiently remote from the proposed Tracy discharge that the near-field impacts will have no cumulative impact. The far field impacts of the SRCSD discharge will have a minor cumulative impact in Delta waters.

### **State of California TMDL Program**

The State of California Total Maximum Daily Load (TMDL) Program establishes a process that provides a framework for identifying load reductions or other actions needed to attain water quality standards (i.e., water quality goals to protect aquatic life, drinking water, and other beneficial uses). The Clean Water Act Section 303(d) established the TMDL process to guide application of state standards to individual water bodies/watersheds. The process includes three steps:

1. Identify Quality Limited Waters – California must identify and prepare a list [Section 303(d) list] of waters that do not or are not expected to meet water quality standards after applying existing required controls (e.g., secondary treatment of municipal wastewater).
2. Establish Priority Waters/Watersheds – California must prioritize waters/watersheds and target high priority waters/watersheds for TMDL development.
3. Develop TMDLs – For each listed water body, California must develop a TMDL that will describe load reductions to achieve water quality standards, allowing for seasonal variations and an appropriate margin of safety. A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect individual water bodies.

The State Water Resources Control Board (SWRCB) is the agency responsible for implementing the TMDL process in California. The U.S. Environmental Protection Agency (EPA) provides federal oversight to the process by reviewing and approving both the Section 303(d) list of quality-limited waters and each TMDL. If EPA disapproves lists or TMDLs, EPA is required to establish the lists and/or TMDLs.

TMDLs should address all significant sources of listed pollutants, including point sources, nonpoint sources, and naturally-occurring sources. A TMDL is the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources and natural background pollutants, and an appropriate margin of safety. TMDLs must clearly identify the links between the water body use impairment and or threat of concern, the causes of the impairment or threat, and the load reductions or actions needed to remedy or prevent the impairment. TMDLs are developed to provide an analytical basis for implementing pollution controls, land management practices, and restoration projects needed to protect water quality. The State of California is required to include approved TMDLs and associated implementation measures in its state water quality management plans, NPDES permits and Basin Plans. USEPA regulations require that NPDES permits be consistent with wasteload allocations in approved TMDLs.

The pollutants listed below are on the 1998 Section 303(d) list for the Sacramento-San Joaquin Delta, the receiving water for the City's proposed discharge. These are the pollutants that the Regional Board, State Board and USEPA have identified as impacting or potentially impacting uses in the Delta. Significant effort has been expended to ensure that this list is comprehensive and complete.

<u>303(d)-listed pollutants in Sacramento-San Joaquin Delta</u>	<u>Basis for Listing</u>
Mercury	Bioaccumulation in Fish
Diazinon	Aquatic Toxicity
Group-A Pesticides	Bioaccumulation in Fish
Electrical Conductivity	Impacts to Water Supplies
Unknown Toxicity	Aquatic Toxicity
Dissolved Oxygen (Stockton Deep Water Channel)	Barrier to Fish Migration

The Central Valley Regional Board has initiated efforts to develop Delta TMDLs for mercury, diazinon, and dissolved oxygen at various locations in the Delta. TMDLs for the other listed pollutants will be developed according to the schedule shown in the 1998 Section 303(d) list, but in no case later than 2011.

The overall impact of the development and implementation of TMDLs will be to reduce loadings of pollutants of primary concern to the Delta to the point that water quality objectives are achieved. Each TMDL will separately consider available scientific information in a quantitative fashion in establishing load reduction plans. The specific outcomes of these TMDLs, in terms of the reductions to be required on individual sources are highly uncertain at this time. The TMDL process must be carried out before judgements can be made regarding the most equitable and cost-effective load reduction plan. It would be premature to assume any specific level of reduction for an specific source prior to completion of the individual TMDLs.

In the end result, however, there is a high degree of certainty that water quality will be protected, since the regulatory system established under the Clean Water Act will require that load reductions are achieved and water quality standards are met. The Act requires

iterations in the load reduction process until standards are achieved or new standards are adopted. By design, the TMDL process is intended to have a long-term beneficial cumulative impact that will eliminate or otherwise control the pollutants of greatest concern in listed waters. In practice, the success of TMDLs in fulfilling these goals is largely unproven.

### **Cumulative Impacts Assessment of Surface Water Quality**

The cumulative impacts of the proposed project, in combination with the above-described projects, are not quantifiable with reasonable certainty. Significant unknowns exist regarding the future configuration and operation of Delta facilities. Additionally, numerous programs and projects are planned or are in progress to improve flow conditions, increase and improve in-stream and riparian habitat, and improve water quality over the next several decades. It is not possible to directly quantify the beneficial and detrimental impacts of these projects without significant caveats.

A point of view held by some posits that CALFED programs and policies are intended to improve both water quantity and quality in the Bay-Delta system, and thus enhance overall ecosystem health and further water management for beneficial uses in the region. Regulatory pressure exists under the Clean Water Act (e.g. Section 303(d) program) to eliminate violations of water quality standards over the next 15 to 25 years. Safe Drinking Water requirements will ensure that finished water provided to users is safe and reliable.

Each project for new development will be required to assess these impacts under CEQA. Increased monitoring and accounting of ambient conditions, including flow and water quality will provide the basis for future regulatory controls. The regulatory system under the Clean Water Act is geared to prevent significant changes in water quality. It is anticipated that the results of monitoring will be used to assess adverse trends in important water quality parameters, and that the results of that work will be used in the CEQA process and in regulation of future projects to ensure that water quality and beneficial uses are protected in accordance with the mandates of the Clean Water Act and the California Water Code.

On the other hand, growth and development in the Central Valley will place increased pressure on water supplies and will increase loadings of some pollutants to surface waters. The concern exists that water quality in the system will slowly degrade as new projects "chip away" at the existing ambient conditions, leading to a significant lowering of water quality.

Given the above uncertainties, the determination of the significance of future cumulative impacts on surface water quality is problematic. From a conservative (i.e. worst case standpoint), a potential outcome is that cumulative future impacts would be potentially significant for one or several 303(d)-listed pollutants, i.e. water quality objectives would continue to be violated in ambient waters. Such impacts would fundamentally be the

result of failure to develop and implement a successful TMDL program for listed pollutants

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APPENDIX F  
TABLES OF DATA OUTPUT  
FOR  
WATER QUALITY ANALYSIS

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Appendix B. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area

TOTAL DISSOLVED SOLIDS (mg/L) - Critical Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	percentile statistics				
		start	end							10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	1/9/90	12/10/92	38	38	100%	222	803	546.2	430.4	472.5	539.5	585.8	695.4
DWR-MWQI	San Joaquin R. @ Mossdale	1/24/90	10/7/92	15	15	100%	415	809	579.6	427.6	478.5	555.0	646.5	805.6
DWR-MWQI	Middle River @ Borden Hwy.	1/24/90	12/10/92	37	37	100%	162	399	259.0	180.0	198.0	256.0	320.0	356.8
DWR-MWQI	Delta Pumping Plant Headworks	1/24/90	12/10/92	37	37	100%	201	475	328.7	230.2	263.0	348.0	394.0	414.2
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/24/90	12/10/92	37	37	100%	198	613	351.3	228.0	249.0	324.0	420.0	522.4
DWR-MWQI	Old River near Byron (St 9)	1/24/90	10/7/92	15	15	100%	207	425	336.3	238.8	276.5	376.0	407.5	417.6

TOTAL DISSOLVED SOLIDS (mg/L) - Wet/Above Normal Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	percentile statistics				
		start	end							10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	12/4/97	6/2/99	77	77	100%	83	578	216.2	111.4	137.0	182.0	257.0	373.8
DWR-MWQI	San Joaquin R. @ Mossdale	1/26/95	9/2/97	33	33	100%	80	560	276.0	112.6	150.0	242.0	392.0	437.0
DWR-MWQI	Middle River @ Borden Hwy.	1/26/95	9/3/97	33	33	100%	97	280	165.7	119.4	124.0	152.0	197.0	231.8
DWR-MWQI	Delta Pumping Plant Headworks	1/26/95	7/2/97	31	31	100%	101	329	178.5	122.0	130.5	164.0	220.0	254.0
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/26/95	9/2/97	33	33	100%	97	388	205.8	122.4	156.0	192.0	246.0	311.8
DWR-MWQI	Old River near Byron (St 9)	12/4/97	6/1/99	13	13	100%	112	383	203.7	115.8	129.0	197.0	249.0	301.2

Note: Monitoring periods for wet/above normal water years vary among the monitoring sites considered in the above data comparison.

Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area

DISSOLVED ORGANIC CARBON (mg/L) - Critical Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	10th	percentile statistics			
		start	end								25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	1/23/90	12/10/92	37	37	100%	2.2	7.9	3.7	2.4	3.0	3.4	4.0	4.8
DWR-MWQI	San Joaquin R. @ Mossdale	1/24/90	10/7/92	14	14	100%	2.1	4.6	3.3	2.4	2.8	3.3	3.7	4.2
DWR-MWQI	Middle River @ Borden Hwy.	1/24/90	12/10/92	36	36	100%	2.4	10	4.2	3.1	3.3	3.9	4.8	5.8
DWR-MWQI	Delta Pumping Plant Headworks	1/24/90	12/10/92	71	71	100%	2.6	8.3	4.0	2.9	3.2	3.5	4.9	5.5
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/24/90	12/10/92	70	70	100%	2.5	9.4	4.1	3.0	3.3	3.7	4.7	5.4
DWR-MWQI	Old River near Byron (St 9)	1/24/90	10/20/92	56	56	100%	2.4	7.1	3.6	2.6	2.9	3.4	4.1	5.0

DISSOLVED ORGANIC CARBON (mg/L) - Wet/Above Normal Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	10th	percentile statistics			
		start	end								25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	11/4/97	6/2/99	80	80	100%	1.9	8.2	3.1	2.3	2.5	2.8	3.3	4.4
DWR-MWQI	San Joaquin R. @ Mossdale	1/26/95	9/2/97	32	32	100%	2.4	10.6	3.6	2.7	2.8	3.2	3.4	4.8
DWR-MWQI	Middle River @ Borden Hwy.	1/26/95	9/3/97	33	33	100%	2.5	10.7	3.9	2.7	2.9	3.2	3.8	6.2
DWR-MWQI	Delta Pumping Plant Headworks	1/26/95	7/2/97	223	223	100%	1.9	9.2	3.3	2.6	2.8	3.0	3.4	4.9
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/26/95	9/2/97	32	32	100%	2.3	8.4	3.5	2.5	2.9	3.2	3.8	4.4
DWR-MWQI	Old River near Byron (St 9)	11/4/97	6/1/99	20	20	100%	2.4	8.4	3.6	2.6	3.0	3.2	3.8	4.6

Note: Monitoring periods for wet/above normal water years vary among the monitoring sites considered in the above data comparison.

Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area

TOTAL ORGANIC CARBON (mg/L) - Wet/Above Normal Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	10th	percentile statistics			
		start	end								25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	9/2/98	8/31/99	50	50	100%	2.0	4.3	2.9	2.4	2.5	2.8	3.1	3.3
DWR-MWQI	San Joaquin R. @ Mossdale	no data available												
DWR-MWQI	Middle River @ Borden Hwy.	no data available												
DWR-MWQI	Delta Pumping Plant Headworks	4/21/99	9/15/99	6	5	83%	2.3	3.6	2.5	<RL	2.4	2.8	3.2	3.4
DWR-MWQI	DMC Intake @ Lindemann Rd.	no data available												
DWR-MWQI	Old River near Byron (St 9)	9/1/98	9/7/99	13	13	100%	2.2	5.3	3.3	2.6	3.1	3.1	3.8	4.2

FECAL COLIFORM (MPN/100 mL) - Wet Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	10th	percentile statistics			
		start	end								25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	11/14/96	9/2/97	11	11	100%	27.5	3440	624.5	32.3	60.1	192.0	369.0	2000.5
DWR-MWQI	San Joaquin R. @ Mossdale	11/14/96	9/2/97	10	10	100%	7.4	2000.5	326.8	48.5	64.1	127.9	200.5	565.5
DWR-MWQI	Middle River @ Borden Hwy.	11/13/96	9/3/97	11	11	100%	3.1	560	96.0	3.1	6.4	12.4	37.5	364.0
DWR-MWQI	Delta Pumping Plant Headworks	11/14/96	7/2/97	9	9	100%	3.1	238	57.5	3.1	4.2	32.4	73.8	128.6
DWR-MWQI	DMC Intake @ Lindemann Rd.	11/14/96	9/2/97	11	11	100%	8.7	782	125.4	11.0	20.0	23.8	51.3	364.0

DWR-MWQI	Old River near Byron (St 9)	11/13/96	9/3/97	11	11	100%	3.1	531	64.4	3.1	6.4	12.4	35.8	50.4
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**Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area**

DISSOLVED OXYGEN (mg/L) - Critical Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	percentile statistics							
		start	end				min det	max det	mean	10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	1/9/90	12/10/92	40	40	100%	5.6	14.7	9.1	7.5	8.0	9.0	9.8	11.1
DWR-MWQI	San Joaquin R. @ Mossdale	1/24/90	10/7/92	14	14	100%	7.2	11.5	9.3	8.1	8.3	9.1	10.2	11.1
DWR-MWQI	Middle River @ Borden Hwy.	1/24/90	12/10/92	34	34	100%	6.1	12.1	8.6	7.1	7.7	8.4	9.4	10.9
DWR-MWQI	Delta Pumping Plant Headworks	1/24/90	12/10/92	66	66	100%	6.5	12.6	8.8	7.0	7.7	8.5	10.0	11.1
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/24/90	12/10/92	64	64	100%	5.3	12.4	8.5	6.8	7.3	8.1	9.4	10.8
DWR-MWQI	Old River near Byron (St 9)	1/24/90	10/20/92	43	43	100%	6.5	12	8.1	6.9	7.1	7.6	8.6	9.8

DISSOLVED OXYGEN (mg/L) - Wet Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	percentile statistics							
		start	end				min det	max det	mean	10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	7/18/96	9/2/97	15	15	100%	5.5	10.4	8.7	7.4	8.1	8.6	9.6	10.1
DWR-MWQI	San Joaquin R. @ Mossdale	7/18/96	9/2/97	15	15	100%	7.0	10.4	9.0	7.7	8.2	9.1	9.6	10.0
DWR-MWQI	Middle River @ Borden Hwy.	7/17/96	9/3/97	15	15	100%	6.4	11.8	8.5	7.1	7.3	7.9	9.9	10.3

DWR-MWQI	Delta Pumping Plant Headworks	7/18/96	7/2/97	15	15	100%	6.4	10.2	8.5	7.0	7.3	8.5	9.7	10.2
DWR-MWQI	DMC Intake @ Lindemann Rd.	7/18/96	9/2/97	19	19	100%	6.4	9.8	8.1	6.8	7.4	7.9	8.9	9.7
DWR-MWQI	Old River near Byron (St 9)	7/18/96	9/2/97	19	19	100%	6.6	11.8	8.5	7.3	7.5	8.0	9.5	10.4

### Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area

Monitoring Program	Site Description	Monitoring start	Monitoring end	n	n det	% det	min det	max det	mean	10th	percentile statistics			
											25th	50th (median)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	1/9/90	12/10/92	40	40	100%	329	1320	908.6	711.4	796.0	901.5	985.0	1188.0
DWR-MWQI	San Joaquin R. @ Mossdale	1/24/90	10/7/92	15	15	100%	722	1470	959.7	734.4	784.5	958.0	988.5	1306.0
DWR-MWQI	Middle River @ Borden Hwy.	1/24/90	12/10/92	34	34	100%	286	730	455.8	315.7	351.5	437.0	553.3	628.8
DWR-MWQI	Delta Pumping Plant Headworks	1/24/90	12/10/92	69	69	100%	221	877	575.1	394.6	453.0	573.0	704.0	765.6
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/24/90	12/10/92	68	68	100%	330	1053	644.1	395.0	473.0	639.5	794.8	891.2
DWR-MWQI	Old River near Byron (St 9)	1/24/90	10/20/92	48	48	100%	321	912	612.3	390.6	477.8	617.5	755.8	806.3

Monitoring Program	Site Description	Monitoring start	Monitoring end	n	n det	% det	min det	max det	mean	10th	percentile statistics			
											25th	50th (median)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	12/4/97	6/2/99	77	77	100%	114	1018	374.3	183.6	229.0	322.0	412.0	648.2

DWR-MWQI	San Joaquin R. @ Mossdale	1/26/95	9/2/97	33	33	100%	132	954	443.9	180.8	235.0	409.0	628.0	753.4
DWR-MWQI	Middle River @ Borden Hwy.	1/26/95	9/3/97	33	33	100%	122	477	282.4	195.0	210.0	264.0	338.0	407.0
DWR-MWQI	Delta Pumping Plant Headworks	1/26/95	7/2/97	220	220	100%	126	760	260.1	195.9	207.0	234.5	298.5	382.1
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/26/95	9/2/97	37	37	100%	153	1250	390.2	213.4	274.0	338.0	465.0	583.0
DWR-MWQI	Old River near Byron (St 9)	12/4/97	6/1/99	14	14	100%	187	750	372.5	203.3	217.3	354.0	461.0	546.6

Note: Monitoring periods for wet/above normal water years vary among the monitoring sites considered in the above data comparison.

### Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area

Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	percentile statistics					
		start	end						mean	10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	1/9/90	12/10/92	39	39	100%	6.2	9.5	7.8	7.4	7.5	7.9	8.1	8.4
DWR-D-1485	San Joaquin R. @ Mossdale	1/9/90	12/10/92	22024	22024	100%	7.1	9.5	8.2	7.7	7.9	8.1	8.6	9.0
DWR-MWQI	Middle River @ Borden Hwy.	1/24/90	12/10/92	32	32	100%	6.6	8.7	7.6	7.1	7.3	7.7	8.0	8.1
DWR-MWQI	Delta Pumping Plant Headworks	1/24/90	12/10/92	68	68	100%	6.6	8.6	7.8	7.2	7.6	7.8	8.1	8.3
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/24/90	12/10/92	65	65	100%	6.8	8.8	7.7	7.1	7.4	7.7	7.9	8.1
DWR-MWQI	Old River near Byron (St 9)	1/24/90	10/20/92	46	46	100%	6.9	8.5	7.6	7.4	7.5	7.6	7.8	8.0

### pH (standard units) - Wet/Above Normal Water Year Type

Monitoring	Monitoring Period	min	max	percentile statistics median

Program	Site Description	start	end	n	n det	% det	det	det	mean	10th	25th	(50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	12/4/97	6/2/99	77	77	100%	6.0	8.5	7.2	6.8	7.0	7.2	7.4	7.7
DWR-D-1485	San Joaquin R. @ Mossdale	12/4/97	6/1/99	11660	11660	100%	6.3	8.3	7.6	7.2	7.4	7.6	7.7	7.8
DWR-MWQI	Middle River @ Borden Hwy.	1/26/95	9/3/97	33	33	100%	6.8	7.8	7.3	7.0	7.1	7.3	7.5	7.6
DWR-MWQI	Delta Pumping Plant Headworks	1/26/95	7/2/97	33	33	100%	6.7	8.1	7.5	7.0	7.2	7.5	7.8	7.9
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/26/95	9/2/97	37	37	100%	6.7	8.0	7.5	7.0	7.3	7.5	7.7	7.9
DWR-MWQI	Old River near Byron (St 9)	12/4/97	6/1/99	14	14	100%	6.2	7.6	7.1	6.6	7.0	7.1	7.3	7.4

Note: Monitoring periods for wet/above normal water years vary among the monitoring sites considered in the above data comparison. DWR-D-1485 San Joaquin River at Mossdale data are collected at hourly intervals.

### Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area

TEMPERATURE (°Celsius) - Critical Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min			percentile statistics				
		start	end				det	det	det	mean	10th	25th	median (50th)	75th
DWR-MWQI	San Joaquin R. nr. Vernalis	1/9/90	12/10/92	40	40	100%	7.8	26.4	17.1	10.2	12.8	17.5	20.6	23.0
DWR-D-1485	San Joaquin R. @ Mossdale	1/9/90	12/10/92	22378	22378	100%	3.1	30.0	18.1	9.4	12.4	19.5	23.3	25.3
DWR-MWQI	Middle River @ Borden Hwy.	1/24/90	12/10/92	34	34	100%	7.6	26.5	18.5	10.0	14.0	19.2	22.6	25.8
DWR-MWQI	Delta Pumping Plant Headworks	1/24/90	12/10/92	69	69	100%	4.7	25.9	18.2	9.4	15.0	19.6	22.1	24.2
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/24/90	12/10/92	68	68	100%	7.0	26.2	18.7	9.7	14.5	20.7	22.9	24.6
DWR-MWQI	Old River near Byron (St 9)	1/24/90	10/20/92	55	55	100%	5.0	25.8	18.2	6.9	14.3	21.0	23.3	24.1

TEMPERATURE (°Celsius) - Wet Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	percentile statistics				
		start	end							10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	7/18/96	2/23/98	33	33	100%	8.4	29.1	15.5	10.7	11.4	13.7	20.2	22.1
DWR-D-1485	San Joaquin R. @ Mossdale	7/18/96	2/23/98	12994	12994	100%	7.3	27.8	16.8	10.5	11.7	15.5	22.3	24.6
DWR-MWQI	Middle River @ Borden Hwy.	1/26/95	9/3/97	33	33	100%	9.8	26	18.1	11.8	14.1	18.0	22.0	24.3
DWR-MWQI	Delta Pumping Plant Headworks	1/26/95	7/2/97	219	219	100%	6.9	30.5	18.9	12.7	15.6	18.5	22.4	25.2
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/26/95	9/2/97	37	37	100%	10.8	26.3	18.8	12.5	14.9	18.7	22.6	23.9
DWR-MWQI	Old River near Byron (St 9)	7/17/96	2/3/98	24	24	100%	8.6	26.0	18.8	12.0	14.4	21.2	22.7	24.2

Note: Monitoring periods for wet/above normal water years vary among the monitoring sites considered in the above data comparison. DWR-D-1485 San Joaquin River at Mossdale data are collected at hourly intervals.

### Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area

AMMONIA, DISSOLVED AS N (mg/L) - Wet Water Year Type														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	percentile statistics				
		start	end							10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	7/18/96	8/25/98	57	52	91.2%	0.01	1.4	0.11	0.01	0.03	0.05	0.09	0.28
DWR-MWQI	San Joaquin R. @ Mossdale	6/13/96	9/2/97	16	12	75.0%	0.01	0.51	0.13	<RL	0.0075	0.03	0.22	0.39
DWR-MWQI	Middle River @ Borden Hwy.	6/12/96	9/3/97	16	16	100%	0.02	0.17	0.07	0.03	0.0375	0.04	0.1125	0.145
DWR-MWQI	Delta Pumping Plant Headworks	6/13/96	7/2/97	14	14	100%	0.01	0.22	0.09	0.04	0.04	0.09	0.10	0.17
DWR-MWQI	DMC Intake @ Lindemann Rd.	6/13/96	9/2/97	16	16	100%	0.02	0.2	0.08	0.03	0.05	0.07	0.0875	0.125
DWR-MWQI	Old River near Byron (St 9)	6/12/96	8/4/98	21	21	100%	0.01	0.14	0.05	0.02	0.03	0.04	0.06	0.11

Note: Monitoring periods for wet/above normal water years vary among the monitoring sites considered in the above data comparison.

**Additional Nutrient Data for San Joaquin River Near Vernalis**

TOTAL NITROGEN AS N (mg/L) - Critical (1992, 1994) and Wet (1993, 1995) Water Year Types														
Monitoring Program	Site Description	Monitoring Period			n	n det	% det	min det	max det	percentile statistics				
		start	end							mean	10th	25th	median (50th)	75th
USGS-NAWQA	San Joaquin R. nr. Vernalis	4/29/92	3/21/95	68	68	100.0%	0.88	4.00	2.18	1.23	1.50	2.20	2.80	3.43

PHOSPHORUS, TOTAL AS P (mg/L) - Critical (1992, 1994) and Wet (1993, 1995) Water Year Types														
Monitoring Program	Site Description	Monitoring Period			n	n det	% det	min det	max det	mean	percentile statistics			
		start	end								10th	25th	median (50th)	75th
USGS-NAWQA	San Joaquin R. nr. Vernalis	4/22/92	3/21/95	69	69	100.0%	0.07	0.75	0.25	0.13	0.16	0.2	0.32	0.41

**Appendix 1T. Summary Statistics for Existing Water Quality of Selected Receiving Waters in Project Area**

COPPER, DISSOLVED (µg/L) - Wet Water Year Type														
Monitoring Program	Site Description	Monitoring Period			n	n det	% det	min det	max det	mean	percentile statistics			
		start	end								10th	25th	median (50th)	75th
DWR-MWQI	San Joaquin R. nr. Vernalis	7/2/97	8/25/98	46	45	97.8%	1	14	2.8	1.5	2.0	2.9	3.0	4.0
DWR-MWQI	San Joaquin R. @ Mossdale	7/2/97	9/2/97	4	4	100%	2	3	2.8	2.3	2.8	3.0	3.0	3.0
DWR-MWQI	Middle River @ Borden Hwy.	no data available												
DWR-MWQI	Delta Pumping Plant Headworks	no data available												
DWR-MWQI	DMC Intake @ Lindemann Rd.	7/2/97	9/2/97	3	3	100%	2	5	3.0	2.0	2.0	2.0	3.5	4.4

DWR-MWQI	Old River near Byron (St 9)	no data available
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HARDNESS (mg/L) - All Water Year Types														
Monitoring Program	Site Description	Monitoring Period		n	n det	% det	min det	max det	mean	percentile statistics				
		start	end							10th	25th	median (50th)	75th	90th
DWR-MWQI	San Joaquin R. nr. Vernalis	1/9/90	6/28/99	170	170	100%	32	286	135.7	53.8	71.3	128.5	193.0	227.1
DWR-MWQI	San Joaquin R. @ Mossdale	1/24/90	9/2/97	58	58	100%	36	311	147.1	52.1	82.3	152.0	198.3	233.3
DWR-MWQI	Middle River @ Borden Hwy.	1/24/90	9/3/97	98	98	100%	42	141	89.1	54.0	70.5	88.0	107.8	123.0
DWR-MWQI	Delta Pumping Plant Headworks	1/24/90	7/2/97	135	135	100%	39	161	101.4	59.0	84.0	104.0	120.5	135.0
DWR-MWQI	DMC Intake @ Lindemann Rd.	1/24/90	5/25/99	143	143	100%	39	255	119.1	66.8	88.0	110.0	144.0	190.8
DWR-MWQI	Old River near Byron (St 9)	1/24/90	6/1/99	115	115	100%	36	166	94.0	54.0	71.5	94.0	114.5	130.6

Note: Monitoring periods vary among the monitoring sites considered in the above hardness data comparison.

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APPENDIX G  
RMA REPORT  
ANALYSIS OF FATE AND WATER QUALITY  
IMPACTS OF THE CITY OF TRACY DISCHARGE

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# ANALYSIS OF THE FATE AND WATER QUALITY IMPACTS OF THE CITY OF TRACY DISCHARGE

Resource Management Associates

May 15, 2001

## BACKGROUND

The City of Tracy discharges treated effluent into the Southern Delta at Old River approximately one mile east of Doughty Cut. The present permitted capacity of 9 MGD is inadequate to accommodate the anticipated population increases within the City's service area. The capacities of the outfall, pumping facilities and diffuser are also inadequate to accommodate the anticipated peak wet weather flow (PWWF) associated with average dry weather flow (ADWF) of 16 MGD.

Old River at the existing outfall location is tidally influenced and flow reversals occur daily. Historically, this section of Old River was a major conveyance channel connecting the San Joaquin River to the interior of the Southern Delta. Unregulated, the net flow within the channel increases as a function of the San Joaquin River flow and CVP and SWP pumping. Intratidal flows are a function of the tidal prism within Old River and the San Joaquin River and the phase lag of the two flow paths to the Old River – San Joaquin River confluence (i.e., South Delta interior versus San Joaquin River).

Several temporary barriers and proposed flow control structures affect flows within Southern Delta channels including the Old River channel at the existing outfall location. The controlled flows impact the flow conditions and assimilative capacity of the Old River at the existing diffuser site. Since a new or auxiliary outfall is required to accommodate increased effluent flows, alternative outfall sites were evaluated. Near-field and far-field impacts of the effluent on water quality were evaluated using the following approaches.

### Near-field Analysis

The near-field analysis utilized the CORMIX plume model to evaluate initial dilution in the vicinity of the existing and candidate diffuser. Independent plume modeling was performed (CH2M, 2001) using the EPA's new Visual Plumes (VP) mixing zone model. The updated 3-dimensional MERGE model (UM3) within VP was used for the analysis. It was checked using DKHW, the VP version of UDKHDEN. All models predicted comparable levels of dilution; however, the CORMIX model predicted a slightly larger mixing zone. Therefore the CORMIX model results are presented as a conservative estimate of the nearfield initial dilution.

Temperature increase and ammonia toxicity were evaluated for the critical low velocity conditions that persist under certain temporary and proposed permanent barrier configurations.

Old River resembles a slow moving stream under the controlled flow conditions. A heat balance temperature analysis was performed based on the channel geometry, net flow and intratidal flows to estimate the background thermal impact of the discharge. The incremental change predicted by the CORMIX model was superimposed on the background increment to assess the potential thermal impact of the discharge. This analysis considered the seasonal operation of the various barrier scenarios for an 12-year meteorological data record.

## Far-field Analysis

The far-field analysis was designed to predict the fate of the wastewater and its impacts within the Bay and Delta system. The ultimate fate and water quality impacts of the treated effluent is influenced by the complex hydrology of the Sacramento – San Joaquin River Delta. An estimate of the City of Tracy treated effluent fraction within the Delta was computed to assess related impacts on water supply quality and ambient water quality. The major water supply export locations include:

1. Central Valley Project (CVP) - Tracy pumping plant / Delta Mendota Canal Intake
2. State Water Project (SWP) – Old River at the Clifton Court Intake
3. Contra Costa Water District (CCCWD) – Old River at the Contra Costa Water Intake

The analysis also provides an estimate of the treated effluent fraction of the ambient water in Old River at the existing and proposed outfall to show the maximum impact of the discharge. Due to the flow constraints imposed by the temporary and proposed permanent barriers, the treated effluent impacts were presented for the periods of April and May, June through September, October and November and December through March. The effluent fraction reaching the San Joaquin River was also evaluated.

The link-node modeling system contains a hydrodynamic model that computes velocities and stage at 90-second intervals. The link-node tidally averaged water quality model simulates the long-term transport and fate of a discharge to the Delta system. The network representation of the Bay and Delta was developed jointly by RMA, DWR and others. The model was calibrated for flow and transport using field data for EC or TDS (Smith and Durbin, 1989).

During this project, additional hydrodynamic simulations were performed to verify that the model adequately represents the flow and stage within the southern Delta. Typical results of this verification effort are presented an Appendix A.

The model simulates flow, stage and water quality over the 1922-1995 hydrologic year period using monthly hydrologic data generated by the DWR operations models (DWRSIM). Two operation study results were used to cover the range of future Delta operation scenarios being considered in the ongoing CALFED evaluation of Delta operation (CALFED, 1999).

The following Delta configuration and CALFED operation alternatives were evaluated.

1. CALFED No-action alternative with present Delta configuration without barriers
2. CALFED No-action alternative with present Delta configuration and temporary Old River fish barrier
3. CALFED No-action alternative with present Delta configuration and temporary South Delta barriers
4. CALFED No-action alternative with enhanced Delta configuration and proposed permanent barrier
5. CALFED Preferred alternative with enhanced Delta configuration and proposed permanent barrier

The link-node model was used to compute the average daily fraction of Tracy treated effluent throughout the Delta and at export locations for the entire 73-year hydrologic period of 1922 - 1995. The incremental changes in dissolved oxygen levels in the Southern Delta were also evaluated.

## ALTERNATIVE OUTFALL SITES

Three alternative outfall sites were evaluated. The evaluation considered the dilution potential and channel geometry that affects the feasibility of outfall construction and maintenance at each site.

### *Old River west of Doughty Cut*

The Old River west of Doughty Cut is shallow but was considered as a potential wet weather discharge site. Its appeal is its proximity to the treatment plant. Field reconnaissance and review of bathymetry data (1998 US Army Corps of Engineers data) revealed no suitable outfall site. This reach of Old River is characterized by hydraulic depths relative to NGVD of 5' or less and slow moving currents. The bottom elevation of the section between Doughty Cut and Tom Paine Slough is approximately -1' NGVD and dewatered at low tide (without South Delta facilities). The link-node model results also indicate poor circulation in this reach of Old River for all barrier configuration and hydrology. Therefore, no detailed evaluation of this option was performed.

### *Doughty Cut west of Old River*

Doughty Cut west of Old River has essentially the same net flow as Old River at the existing outfall site. The intratidal flows are greater since it conveys the flow generated by the additional tidal prism of Paradise Cut and the Old River channel west of the existing outfall. The greater intratidal flow was viewed as having the potential for enhanced dilution of the treated effluent.

Figure 1 shows the location of the possible site. Figure 2 shows the channel cross sections (based on 1998 bathymetry data) immediately west of the confluence with Old River and a possible diffuser port line. Note the considerable variation in channel geometry resulting from a transition of the dominant flow from one side of the channel to the other. Due to the channel alignment, the current hugs the northerly side of the channel east of the diffuser site. A scour hole and bank cutting is evident in this reach. The current west of the site hugs the southwesterly shore and a scour hole and bank cutting is also evident. These channel characteristics strongly suggest an unstable bottom configuration since scour holes tend to migrate as bank cutting progresses. These conditions make outfall stability problematic. Therefore, this site was deemed unacceptable.

Additionally, the increased intratidal flow rate was countered by a larger cross section area that resulted in slightly lower intratidal velocities. The lower velocities combined with a depth of 10' relative to NGVD resulted in poorer initial dilution characteristics than in Old River in the vicinity of the existing outfall. A third factor that discredits this site is that it is within the "primary zone" of the Delta. In this area, wastewater water discharges are restricted (Delta Protection Commission, 1992). Therefore, no additional evaluation of this location was performed.

### *Old River 800' west of the existing outfall*

Old River in the vicinity of the existing outfall is shown in Figure 3. The channel west of the diffuser is straight and uniform and is deeper than at the existing outfall. The channel uniformity is seen in Figure 4. Figure 4 shows the channel cross sections (based on 1998 bathymetry data) on either side of the proposed supplemental outfall. The straight and uniform channel suggests stable channel conditions. Its appeal is its proximity to the treatment plant and pipeline rights-of-ways and is located outside of the "primary zone" of the Delta,

By the process of elimination, an outfall located west of the existing outfall was deemed

the only practical option for in-Delta disposal of the anticipated increase in the City of Tracy discharge. The analysis described in the following sections assumes a supplemental outfall located in Old River 800' west of the existing outfall.

#### DESIGN HYDRAULIC CONDITIONS

CALFED has performed numerous DWRSIM operations model simulations to evaluate various scenarios for managing the water resources of the Sacramento and San Joaquin River systems. These operation studies are summarized in the CALFED EIR/EIS draft programmatic Attachment A. Two no-action and eight preferred alternatives are summarized in the draft CALFED document. The monthly hydrology for the following operation studies were used to cover the range of future Delta operation conditions being considered in the CALFED evaluation of Delta operation.

- No-Action; 2020D09C-CALFED-785
- Preferred Alternative without Hood Diversion; 2020D09C-CALFED-789

Model boundary conditions include the San Joaquin and Sacramento Rivers and other major rim inflows, in-Delta consumptive use and export rates on a monthly time interval. In-Delta consumptive use rates were allocated to individual network elements based on historical inflow and withdrawal patterns.

A wet weather flow increment for the City of Tracy discharge rate was computed as a function of the net channel depletion defined by the operations model. The net channel depletion represents in-Delta use less precipitation. The wet weather increment, which was defined as an inverse linear relationship with the net channel depletion, varied between 0 and 16 MGD. Therefore the total wastewater inflow ranged between 16 and 32 MGD. (Note that the 32 MGD monthly average wet weather flow should not be confused with the 38 MGD PWWF.) This approach results in wet weather flow increments that respond to hydrologic conditions. As an example, no wet weather increment would be added for January 1976 (drought) and a 16 MGD increment would be added for January 1978 (end of drought).

Tidal inputs at the Bay boundary near Benicia assume a typical diurnal tide.

The operation of the Delta cross channel, Old River fish barrier, Clifton Court gates and the south Delta Facilities are not specified by DWRSIM. Therefore, several Delta operation assumptions were evaluated to cover the range of flow control possibilities. These operation assumptions are based on our understanding of current operation philosophies gleaned from information provided by the DWR (Nelson, 2000) and our conversations with Steve Roberts, Chief of Division of Planning and South Delta Planning, DWR. A total of four operation alternatives were evaluated assuming the CALFED no-action case and various barrier configurations. For the analysis of a fifth operation alternative, the CALFED preferred alternative was assumed with permanent South Delta facilities.

#### CALFED No-Action Operation without south Delta facilities and Old River fish barrier

The south Delta facilities including the Old River fish barrier are temporary in nature and may not be installed during some years. Therefore, the first scenario simulated was the CALFED no-action alternative without these facilities. The following gate and barrier operations were assumed.

### *Delta Cross Channel*

*(The Delta cross channel is closed for flood control and fisheries considerations.)*

- Closed from October first through the end of May.
- Open during June, July, August and September except when the Sacramento River flow exceeds 25,000 cfs. (The Cross Channel is usually open during this period unless elevated water levels associated with high flows are of flood control concern.)

### *Clifton Court gate*

*(The Clifton Court gates are operated to maintain acceptable watersurface elevations and to control scour in Delta channels and minimize the impacts on agricultural intakes within the southern Delta.)*

- Open during the 18 hours of the tide cycle with the highest water surface elevations at the intake location (i.e., closed at low tide).

### CALFED No-action scenario with temporary Old River fish barrier

The temporary Old River fish barrier has been installed during the spring and fall for many years while the temporary south Delta facilities have only been installed since 1992. Therefore, the no-action scenario was simulated with the temporary fish barrier only to enable assessment of the incremental impact of the other south Delta facilities on dilution at the City of Tracy outfall. The following gate and barrier operations were assumed.

#### *Delta Cross Channel and Clifton Court gate*

Defined above

#### *Old River Fish Barrier*

*(The Old River fish barrier is designed to keep San Joaquin water out of the southern Delta (and away from water project pumps) in an attempt to improve conditions for migrating salmon adults and out-migrating salmon smolts. The Old River barrier is also operated to control south Delta TDS levels and dissolved oxygen concentrations within the Stockton ship channel. The spring and fall barrier hydraulic characteristics [weir crest width and elevation] are based on DWR specifications of 1996-97)*

- In place during April, May, October and November if San Joaquin River < 7,000 cfs. (The temporary barrier cannot be installed at elevated flow rates and the barrier is designed to pass elevated flows for flood control considerations.)
- Removed during all other months

### CALFED No-action scenario with temporary south Delta facilities and Old River fish barrier

The temporary south Delta facilities are designed to raise water surface levels during the irrigation season by restriction flows out of the southeastern Delta. This Delta configuration closely represents current Delta operation. The following gate and barrier operations were assumed.

#### *Delta Cross Channel, Clifton Court gate and Old River Fish Barrier*

Defined above

#### *South Delta Facilities*

*(The south Delta facilities consist of three temporary structures designed to maintain water surface levels in the Southern Delta. They utilize 48-inch pipes equipped with flap gates to force uni-directional flows to the east. Based on the most recent installation, a six and nine pipe configuration was assumed for Middle and Old River barriers respectively. Six pipes were assumed for the Grantline Canal installation, however three of the pipes were assumed to allow flow in both directions to prevent water stagnation east of the barriers. Each barrier incorporates a weir that allows flow in either direction above the crest elevation ranging from 1' – 2' NGVD. The hydraulic characteristics are based on DWR specifications of 1996-97.)*

- Old River and Middle River barriers in place from April to September
- Grantline Canal barrier in place from June to September

#### CALFED No-action scenario with enhanced Delta configuration and permanent barrier

The Delta infrastructure assumed for this configuration is based on our understanding of likely improvements that were gleaned from information contained in the CALFED draft programmatic EIR/EIS; Attachment A. The following gate and barrier operations were assumed.

#### *Delta Cross Channel*

Defined above

#### *Clifton Court gate*

*(The proposed Byron diversion point was assumed south of the Conta Costa Water intake on Old River and the existing gate structure was assumed closed. The Byron gates were operated to maintain a uniform inflow velocity.)*

- Always open with inflow velocity control

#### *South Delta Facilities*

*(The permanent south Delta facilities and Old River fish barrier will have gates that operate to control channel flow and stages between the barriers and the San Joaquin River. The timing and operation were assumed as follows except when the San Joaquin River exceeds 7,000 cfs.)*

- Old River and Middle River barriers in place from April through October. Each radial gate was assumed open on the raising tide and closed on the falling tide.
- Grantline Canal barriers in place from June through October. Each radial gate was assumed open except for the three hours preceding higher low water and four hours preceding lower low water.
- Old River fish barrier radial gates were assumed closed during the months of April, May, October and November.

#### *Channel improvements*

*(Dredging is assumed for south Delta channels that are currently restrictive or will become restrictive to flow under the preferred alternative operation.)*

- Old River between the Byron intake and Woodward Channel deepened to a minimum depth of 20' NGVD to accommodate the increased SWP export rates.
- Middle River north of Old River deepened to 4' NGVD to improve in-Delta circulation.

#### CALFED Preferred alternative with enhanced Delta configuration and permanent barrier

The Delta infrastructure assumptions were identical to the No-action scenario with enhanced Delta configuration and permanent barrier listed above. This alternative was designed to quantify the differences attributable to the two CALFED operations models (i.e., hydrologic impacts). The following gate and barrier operations were assumed.

#### NEAR-FIELD DILUTION ANALYSIS

The near-field analysis utilized the CORMIX plume model to evaluate initial dilution in the vicinity of the existing and candidate diffuser. Temperature increases and ammonia toxicity were evaluated for the critical low velocity conditions that persist under certain temporary and proposed permanent barrier configurations.

The near-field analysis utilized the CORMIX plume model to evaluate initial dilution of the discharge plume in the vicinity of the existing and proposed diffusers. Initial dilution is computed as a function of

- Channel configuration
- Diffuser characteristics
- Discharge rate
- Ambient velocity and depth
- Ambient and discharge temperature and water quality

#### *Channel configuration*

The existing diffuser is located towards the northerly side of the Old River channel. Figure 5 shows cross sections on either side of the existing diffuser developed from bottom elevation transects provided by the Corps of engineers that reflect 1998 channel conditions. Note that the cross section nearest the diffuser centerline is very similar to that shown on the diffuser as-built drawings. The similarity suggests a stable channel bottom.

#### *Diffuser characteristics and discharge rate*

The existing diffuser employs ten 8-inch ports at 8 foot centers. All ports are horizontal and directed downstream (towards the west). The port elevations are -11' NGVD.

Preliminary CORMIX simulations of the existing diffuser indicated that dilution of approximately 1:7 is achieved prior to surfacing of the plume under present day low flow rates of approximately 6 MGD and low channel velocities of approximately 0.1'/sec. The magnitude of the dilution was corroborated by temperature measurements during a field trip of November 22, 2000 where temperature increases above ambient of approximately 1° C were consistent with a 1:7 dilution ratio at the water surface. During this field trip, the plume was clearly visible as surface turbulence and the customary effluent odor was present. These observations were made

possible by the calm wind and resulting flat water surface.

Preliminary design goals for the new diffuser included:

1. Passive split of flow (controlled by hydraulic capacity of the diffuser) between the existing and new diffusers from a common outfall pipeline such that adequate initial dilution is achieved for the range of anticipated flows (e.g., ADWF = 16 MGD and PWWF = 38 MGD).
2. Dilutions in the order of 20:1 prior to plume surfacing to avoid the conditions described above.
3. Prevention of back-flow into the diffuser port at low discharge rates to prevent sediment from entering the diffuser.

Each of these goals can be achieved in part by equipping all diffuser ports with Tideflex® back-flow prevention valves marketed by Red Valve, Inc. The Tideflex valve opening enlarges as the flow and pressure within the diffuser increases. Therefore, the exit velocity is non-linear function of flow. Back-flow is eliminated and the minimum exit velocity should preclude sediment from entering the diffuser.

The preliminary design for the proposed diffuser incorporates twelve 8-inch ports at 7 foot centers. All ports are horizontal and directed downstream. The port elevations were -15' NGVD. All existing and proposed diffuser ports were assumed to be equipped with the Tideflex valves. If the Tideflex valves are not used, 6" ports would be required on both diffusers. A detailed description of the initial dilution is provided later in this section.

#### *Ambient velocity and depth*

The flow and velocity in Old River at the proposed and existing outfall sites is impacted by the permanent and temporary barriers. The flows, velocities and depths computed at 30-minute intervals during each month of the 73-year evaluation period at both outfall sites were evaluated to determine the minimum average velocities, flows and depth for the range of hydrology and operating assumptions.

Figure 6 shows velocities over the tidal cycle for each operation assumption corresponding to the monthly hydrologic conditions that produced the minimum average velocity. Note that prolonged periods of velocities less than 0.3 ' /sec occur during June for each case where the temporary or permanent barriers are in place. Also note that the two cases assuming permanent barriers are identical since there is no difference between the flows of the CALFED no-action and preferred alternative for the month (June 1993) that produces the minimum flow condition.

The velocity plot for the no fish barrier case corresponds to a San Joaquin River flow of 1,285 cfs. The minimum flow passing the Old River fish barrier configuration (weir elevation = 0' NGVD) occurs under this flow conditions because the average differential on either side of the barrier is at a minimum.

Table 1 shows the minimum average velocity, flow and depth at the proposed outfall over the tidal cycle for the periods of April and May, June through September, October and November and December through March. The table does not include averages at the existing outfall since the depth and flows are essentially the same. The velocity at the existing outfall is approximately 16% higher due to the smaller cross section area.

Table 1

Mean Old River water surface elevation, flow and velocity at the site of the proposed outfall for various seasons, Delta configuration and Delta operating assumptions

A review of Table 1 indicates a minimum average velocity of less than 0.5 '/sec for all conditions and a minimum average velocity less than 0.2 '/sec during summer months when temporary or permanent south Delta facilities are operational.

*Ambient and discharge temperature and water quality*

The most comprehensive ambient temperature data set in the southern Delta is for the San Joaquin River at the Mossdale Bridge. The temperature record consists of 112,000 hourly measurements between 1984 and 2000. These temperature measurements provide a comprehensive long-term representation of temperature at the Old River outfall sites. To verify this assertion, the shorter-term temperature record for Grantline Canal at Tracy Bridge was compared with the Mossdale Bridge data. Figure 7 shows both temperature records for a period that encompasses the Grantline Canal data set. The temperatures for these two locations are nearly identical except for the spring of 1997 when the Old River fish barrier was in place (construction of the Old River fish barrier began on April 9 and was removed by May 19, 1997). Since discharge temperatures are greater than the ambient temperature, the cooler spring Mossdale data results in a greater temperature differential between the discharge and ambient. Therefore, use of the Mossdale data results in a conservative (worst case) evaluation of the thermal impacts of the effluent.

The temperature of the effluent was estimated from temperature data from the adjacent community of Manteca. The temperature record consists of 1,200 measurements during the period of 1995 through 2000. Table 2 lists the monthly temperatures of the ambient and effluent used in the temperature evaluation.

Table 2  
Average monthly temperatures of the ambient and effluent used in the temperature analysis

Month	River Temp. °F	Effluent Temp. °F	emp. Diff. F
January	50.0	66.0	6.0
February	53.4	66.0	2.6
March	58.1	67.6	.5
April	63.3	70.5	.2
May	67.5	73.4	.9
June	72.1	77.2	.1
July	76.1	79.9	.8
August	75.2	81.0	.8
September	71.2	80.8	.6
October	65.1	77.4	2.3
November	55.8	73.4	7.6
December	49.3	68.0	8.5

The water quality issue considered in the nearfield analysis was ammonia toxicity. Ammonia toxicity is influenced by pH. Again, the most comprehensive ambient pH data set in the southern Delta is the San Joaquin River at the Mossdale Bridge. The size of the data set is

comparable to the Mossdale temperature record. The pH at Mossdale is influenced by upstream biological activity that depletes dissolved CO<sub>2</sub> and is unusually high when compared to most fresh water environments. As the water progresses through the Delta, respiration of plankton and decay of organic material replenish the CO<sub>2</sub> and the pH decreases. To quantify the expected decrease, available pH data in the vicinity of the outfall were paired (by sampling time) with the pH at Mossdale. The results of this comparison are shown in Figure 8. There is considerable variation between the two data sets, however there is a clear bias towards lower pH values within the Delta interior. The regression coefficient of 0.9395 is consistent with the ratio of the maximum observed pH values (i.e., 8.8 / 9.32 = 0.9442). Therefore, the ammonia toxicity analysis was based on the Mossdale Bridge pH adjusted by a factor of 0.95. It should be noted that during periods when barriers are in place, little or no San Joaquin River water reaches these interior Delta monitoring stations via Old River which may contribute to the weak correlation.

### Modeling Approach

The initial dilution of the effluent plume was evaluated for the range of flows and temperature conditions described above. The minimum dilution is expected at the lower range of average current velocities that vary between 0.2 and 0.5'/sec. Tidal effects result in near slack conditions for all operation conditions considered in the analysis. Therefore, model sensitivity to velocities of this magnitude was evaluated. The dilution at the time the plume surfaces was used for comparison. Since the plume surfaces more quickly with larger temperature differences and shallower depths, the largest temperature difference of Table 2 and shallowest depth (existing outfall) was evaluated.

The model sensitivity analysis indicated that the initial dilution is dominated by the high exit velocity relative to the low current velocities (< 0.5 fps) and the temperature differences are of minor importance. The range of predicted dilution ratio and the distance for the plume to surface is summarized in Table 3.

Table 3

Computed dilution ratios and distance to surfacing of the plume for the anticipated range of flows and current velocities

Total discharge rate, MGD	Port exit velocity, fps	Current velocity, fps	Equivalent channel flow, cfs	ilution ratio plume surfacing	Distance to plume surfacing
16	10	0.05	85	21:1	36
16	10	0.5	850	46:1	38
38	16.2	0.05	85	17:1	36
38	16.2	0.5	850	26:1	39

The plume surfaces within 40 feet of the outfall in all cases. Dilution ratios were approximately 20% higher for the proposed outfall. Dilution ratios were approximately 10% lower when 6" ports without the Tideflex valves were assumed.

### Temperature Analysis

Old River resembles a slow moving stream under the controlled flow conditions. To

assess the incremental temperature impacts of repetitive dosing of the water body with increased effluent volume, a heat balance temperature analysis was performed. The analysis considered the channel geometry and the monthly minimum net flow and intratidal flows for the critical barrier condition (lowest monthly net flow among the 5 cases). The 12-year meteorological data record (hourly data from 1989 to 2000) for the Modesto CIMIS station was used to compute the heat transfer at the air-water interface. The analysis generated computed temperatures for the Old River at thermal equilibrium and the increase in temperature results from an increase in the discharge rate from 9-mgd to 16-mgd and the effluent temperature listed in Table 2. The temperature at equilibrium assumption is conservative since the River's sensitivity to the heated effluent decreases with the departure from equilibrium.

Typical results of this analysis are shown in Figure 9. The computed temperatures for the 1991 – 1992 drought years are shown to provide temporal resolution. The seasonal response for all other years was similar. Keep in mind that the critical month flow conditions was assumed so that this analysis provides the upper envelope (worst case) of the thermal impact potential.

Table 4 shows the average increase in temperature by month over the 12 year period. The incremental change predicted by the CORMIX model (i.e., 21:1 dilution) was superimposed on the background increment to assess the maximum potential thermal impact of the discharge at the limits of the mixing zone (< 50' on either side of the diffuser).

Table 4

Maximum potential seasonal impacts of the City of Tracy discharge at the anticipated discharge rate of 16-MGD on the water temperature of Old River under minimum Old River flow conditions

Month	Observed Old River temperature °F	Effluent relative to Old River °F	temp. Old	Computed background temperature increment, °F	Temperature increment after 21:1 dilution of plume, °F
January	50.0	16.0		0.20	0.96
February	53.4	12.6		0.17	0.77
March	58.1	9.5		0.11	0.56
April	63.3	7.2		0.25	0.59
May	67.5	5.9		0.25	0.53
June	72.1	5.1		0.46	0.70
July	76.1	3.8		0.47	0.65
August	75.2	5.8		0.67	0.95
September	71.2	9.6		1.12	1.57
October	65.1	12.3		0.41	0.99
November	55.8	17.6		0.63	1.46
December	49.3	18.5		0.24	1.12

### Ammonia Toxicity

The acute and chronic ammonia toxicity threshold concentration was computed using the following equation of the "National Criterion for Ammonia in Fresh Water" for salmonids.

$$\text{Acute: } \text{NH}_3\text{-N} = 0.275 / (1 + 10^{7.204 - \text{pH}}) + 39.0 / (1 + 10^{\text{pH} - 7.204})$$

$$\text{Chronic: } \text{NH}_3\text{-N} = 0.0858 / (1 + 10^{7.688 - \text{pH}}) + 3.7 / (1 + 10^{\text{pH} - 7.688})$$

The maximum effluent ammonia concentration for the anticipated level of treatment is 3.0 mg/L as nitrogen. The pH that corresponds to the acute toxicity threshold is 8.3. The treatment plant is expected to produce an effluent with a pH that is below 8.3, therefore, acute ammonia toxicity does not appear to be an issue within the mixing zone.

Chronic toxicity is determined using monthly average discharge and ambient conditions. Table 5 shows the maximum average pH at Mossdale, 95% of the maximum average Mossdale pH and the corresponding chronic ammonia threshold concentration for each month. (The 95% adjustment represents interior south Delta conditions as discussed above.) Ammonia data (Appendix Table ? \_\_\_\_\_ ? of the Tracy EIR document) from four interior south Delta stations indicate a maximum ammonia concentration of 0.22 mg/L. This concentration is well below the chronic ammonia toxicity threshold values listed in Table 5.

The upgraded treatment plant will be capable of producing effluent with a monthly average pH of 0.5 mg/L. Assuming discharge and background ambient ammonia concentrations of 0.5 and 0.22 mg/L respectively, a dilution of 1 part effluent to 0.33 river water is required to produce sub-chronic conditions. Such dilutions are achieved within two feet of the diffuser port and the area above the chronic toxicity threshold is less than 1% of the river cross section. Therefore, chronic ammonia toxicity appears to be a non-issue for the proposed discharge.

Table 5.

Maximum monthly observed and scaled monthly average pH in the San Joaquin River at Mossdale and the chronic ammonia toxicity threshold corresponding to the scaled pH

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mossdale pH	7.96	8.18	8.35	8.18	8.44	9.12	9.12	8.96	8.85	8.45	8.00	8.46
Mossdale pH x 0.95	7.56	7.77	7.93	7.77	8.02	8.66	8.66	8.51	8.41	8.03	7.60	8.04
Chronic toxicity, mg/L @ scaled pH	2.15	1.72	1.40	1.72	1.24	0.43	0.43	0.56	0.66	1.22	2.08	1.20

FAR-FIELD ANALYSIS

Water Quality Model Specifications and Assumption

Model simulations were performed for the maximum forecasted City of Tracy dry weather flow plus wet weather increment for the five combinations of Delta operation assumptions, CALFED alternatives and hydrology described previously. The following water quality parameters were simulated.

*Conservative Tracer*

The conservative tracer simulation was designed to trace the potential influence of the treated effluent. An arbitrary concentration of 100 was assigned to the treated effluent discharge while zero is assigned to all other sources. The simulated tracer concentration becomes the percent of treated effluent originating from the discharge. The percent effluent was computed at each network node and withdrawal location.

### *Carbonaceous and Nitrogenous BOD*

Carbonaceous and nitrogenous BOD represents the oxygen consuming potential of the treated effluent. The impacts of the treatment plant upgrade on dissolved oxygen within the southern Delta were evaluated by comparing simulation results for the existing BOD load with the carbonaceous and nitrogenous BOD loads at the projected discharge rate and anticipated level of treatment.

For existing conditions (6.5 MGD ADWF), a 5-day C-BOD of 20 mg/L was assigned to the Tracy treated effluent. A factor of 2.5 was assumed to convert 5-day to ultimate BOD. This conversion factor is associated with the decay rate of 0.1 (base e). [i.e.,  $F = 1/(1 - e^{-0.5})$ ; U-BOD =  $20 * F = 50$  mg/L]. The N-BOD was based on an average ammonia nitrogen concentration of 20 mg/L as nitrogen. A factor of 4.6 was assumed for converting to N-BOD (i.e., N-BOD = 92 mg/L).

For proposed conditions (16-MGD ADWF), an ultimate C-BOD of 15 and 25 mg/L was assumed for the ADWF and WWF increment respectively. The corresponding ammonia values were 1 and 2 mg/L (N-BOD of 4.6 and 9.2 mg/L respectively). The increased concentration for the wet weather increment was designed to account for a possible decrease in wintertime plant efficiency and increased flows. A decay rate of 0.1 / day (base e) was assumed for both nitrogenous and carbonaceous BOD.

### *Dissolved Oxygen*

The dissolved oxygen simulation was designed to estimate the potential incremental change in dissolved oxygen within Old River, Middle River and Grantline Canal that would result from the increased City of Tracy treatment capacity and upgraded treatment processes. Old River west of Grantline Canal experiences low oxygen levels due in part to oxygen consuming materials entering the region from agricultural returns and from adjacent Delta channels. Poor circulation exacerbated by the temporary south Delta facilities appears to contribute to the dissolved oxygen sag.

The dissolved oxygen simulation was designed to estimate the incremental change in dissolved oxygen that would result from the proposed City of Tracy discharge rate and quality. Oxygen uptake associated with all environmental conditions not attributable to the Tracy treated effluent was represented by an oxygen sink rate. A rate of approximately 2000 mg/M<sup>2</sup>/day was selected through calibration to lower the computed ambient oxygen to observed levels. The oxygen simulation is a simplification of oxygen dynamics and is only intended to estimate the relative impacts of the Tracy discharge. It is not intended to assess absolute oxygen levels throughout the Delta.

BOD and dissolved oxygen kinetics are temperature dependent. For this analysis, the monthly temperatures listed in column 2 of Table 4 were assigned to all Delta nodes.

Reaeration was computed from the intratidal hydrodynamics for low wind conditions. A low wind speed of 3 feet per second (fps) was assumed since the primary emphasis of the analysis are the periods of low dissolved oxygen that are associated with periods of low reaeration. A wind speed of 3 fps is the approximate 10-percentile speed at Stockton.

### Impacts of Treated effluent

The analysis utilized simulation results for the hydrologic period from October 1922 through September 1995. Since monthly average hydrology is provided by DWRSIM, all results

are presented as end-of-month values that reflect the average hydraulic and water quality condition.

The fate of the Tracy treated effluent was computed by assigning a conservative tracer to the discharge as described above. The incremental change in the treated effluent component expressed as percent resulting from an increase in the discharge rate from 9-mgd to 16-mgd is summarized as follows:

- Effluent component in the San Joaquin River east of Old River
- Effluent component at the CVP, SWP and CCWD export locations
- Seasonal effluent component at the CVP export location
- Seasonal effluent component in Old River at the existing Tracy Outfall

The computed incremental change in the percentage of effluent reaching the San Joaquin River is negligible for all cases except for those featuring the permanent barriers. The permanent barriers, as represented in the model, have the potential due to their hydraulic capacity of increasing the water surface elevation in the southern Delta such that the net flow in Old River at the Tracy outfall location is in the easterly direction. The incremental change in the percentage effluent is still quite low and is less than 0.2% for 99% of the time.

The incremental change in the component of effluent at the export locations and in Old River at the Tracy discharge location is shown graphically. The incremental change expressed as percent effluent is plotted versus the percent of the time (abscissa) that the wastewater percentage is exceeded during the 73-year simulation period. Three plots are presented for each of the five operation conditions.

The first plot of each group shows the incremental change in the treated effluent percentage at the three major export locations. In all cases, the highest percentages are for the CVP. The second plot of each group shows the incremental change in the percentage effluent at the CVP export location on a seasonal basis (the four month groupings defined previously). The third plot shows the seasonal variation in Old River at the outfall location.

*Figures 10 - 12: No-action with present Delta configuration without barriers*

Without barriers, there is ample circulation to limit the buildup of effluent within the southern Delta.

*Figures 13 - 15: No-action with present Delta configuration and temporary Old River fish barrier*

As expected, the addition of the Old River fish barrier raises the effluent percentages during the April – May and October – November periods by restricting circulation flow in Old River. The 10% exceedance values at the outfall site are more than doubled with the addition of the barrier. However, only small increases are computed at the export locations.

*Figures 16 - 18: No-action with present Delta configuration and temporary South Delta barriers*

The impact of the temporary south Delta facilities is clearly seen in the seasonal plots. The June – September percentages for Old River (Figure 18) are increased by a factor up to 3 over the no-barrier cases. The impact at the exports is much less since the south Delta facilities isolate the southeastern Delta from the export locations by restricting westerly flows.

*Figures 19 - 21: No-action with enhanced Delta configuration and proposed permanent barrier*

The permanent south Delta facilities cases assume the Byron Tract intake to Clifton Court. The effect of this relocation reduces the effluent component entering Clifton Court and further increase the effluent component to the CVP. The Old River effluent summer period percentages also increase relative to the temporary barrier assumption. The absence of the overflow weirs of the temporary barriers result in less westerly flow (at high water) at the Old River DMC and Middle River barrier sites. The absence of these westerly flows further isolates the southeastern Delta from the rest of the Delta and further reduces circulation.

*Figures 22 - 25: Preferred alternative with enhanced Delta configuration and proposed permanent barrier*

The change in DWRSIM operations model assumption has little impact on the effluent percentages at the exports and in Old River. These results demonstrate that the Delta channel configuration and barrier operation are much more important than the differences in the hydrology of the two DWRSIM operation assumptions.

To further quantify the incremental change in the percent treated effluent presented in Figures 10 through 25, Table 6 is provided. This table lists the 1% and 5% exceedance and the maximum computed incremental change in the percentage of treated effluent from the City of Tracy at the three export locations and in Old River in the vicinity of the outfall. The percentages represent the computed increment associated with an increase in rated plant capacity from 9 mgd to 16 mgd. The percentages of Table 6 are for all months without regard to time of year.

The computed treated effluent percentage reaching the Contra Costa Water intake (CCWD) was always less than 1%. The CCWD intake is located north of the other and further from the influence of the City of Tracy discharge.

The computed treated effluent percentage reaching the Clifton Court intake (SWP) exceeded 1% only once for the CALFED no-action with temporary barriers scenario.

The CVP receives a larger component of the San Joaquin River flow since it captures a disproportionate fraction of the water flowing west in Old River and the Grantline Canal. The maximum computed treated effluent percentage at the CVP exceeds 1% for all five scenarios and exceeds 1% more than 5% of the time when permanent barriers are assumed.

The computed treated effluent percentage in Old River in the vicinity of the outfall is related to the net flow past the outfalls. Both the temporary and permanent south Delta facilities create low flow conditions that concentrate the treated effluent in the vicinity of the outfall.

The impact on any conservative parameter associated with the Tracy treated effluent discharge can be estimated from the concentration of the conservative tracer that is assigned to the discharge. The following mass balance equation is utilized to make the conversion from percent treated effluent percentage increment to the increment in concentration of a conservative water quality parameter.

$$C_w = C_a + Q_m * (C_m - C_r)$$

Where:  $C_w$  = new concentration of the location

$C_a$  = ambient concentration at the location

$Q_m$  = fraction of treated effluent at the location

$C_m$  = concentration in the treated effluent

$C_r$  = concentration in Old River at the Tracy discharge site

Table 6

Tracy                      at                      Various                      Delta                      Locations

Computed Incremental Change in the Percentage of Treated Effluent from the City of

The impacts on water quality parameters that are non-conservative may be estimated by including a qualitative assessment of the impacts of the decay rates that influence its concentration.

#### Potential impacts of treated effluent on dissolved oxygen within south Delta channels

Each Delta operation alternative was simulated assuming present and future BOD and ammonia loadings associated with the existing and proposed treatment plant processes. The results of this analysis are presented as scatter plots (Figures 25 through 29) of the minimum computed dissolved oxygen concentration within the three Delta channels. The computed dissolved oxygen under present treatment conditions and permitted discharge rate of 9-mgd is referenced to the X-axis and the corresponding computed concentration assuming future treatment conditions and 16-mgd discharge rate is referenced to the Y-axis. Keep in mind that the purpose of this analysis is to evaluate the potential for improvement in dissolved oxygen levels associated with plant expansion. Assumptions such as prolonged low wind speeds and the resulting low reaeration rates likely overstate the potential for low concentrations seen in the computed results.

Results for the no-action scenario with the present Delta configuration without all barriers and with the temporary Old River fish barrier are the only cases seen in Figures 25 and 26. The lowest computed dissolved oxygen levels occur in Middle River as flows migrate towards the San Joaquin River under summertime low river flows and export rates. The computed dissolved oxygen at the 5 mg/L threshold improves by approximately 0.8 mg/L with treatment plant upgrade despite the increase in discharge rate from 9-mgd to 16-mgd.

Results for the no-action scenario with present Delta configuration and temporary South Delta barriers are seen in Figure 27. The lowest computed dissolved oxygen concentrations in Old and Middle Rivers occur during the summer months when the temporary barriers are in place. With the treatment plant upgrade, computed dissolved oxygen at the 5 mg/L threshold improves by approximately 1.2 mg/L.

Results for the no-action and preferred alternative with enhanced Delta configuration and proposed permanent barrier are shown in Figures 28 and 29. Again, there is an increase in the minimum computed dissolved oxygen levels by more than 1.0 mg/L at the 5 mg/L threshold. The overall minimum concentrations are lowered slightly relative to the temporary barrier case since depths are greater (particularly in Middle River where dredging to -4' NGVD was assumed) while low velocities associated with the barriers are prevalent during the warm weather months.

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## Appendix A

### Assessment of Hydrodynamic Model Calibration

The link-node hydrodynamic model has been developed and calibrated by the DWR, RMA and others over the past 30 years. Initial calibration efforts emphasized tidal stage due to the shortage of intratidal flow data. In recent years, technological advances in velocity measuring equipment have allowed the DWR and others to measure the total channel flow. These flow measurements remain relatively scarce due to the cost of such current measurements.

As part of the City of Tracy discharge assessment project, available flow data were examined to identify a time sequence where flow and boundary condition data were available. A period in April 1997 was identified as having a fairly comprehensive set of measurements that provided adequate definition of model boundary conditions and flow in stage near Old River. The April data set also provided an opportunity for evaluating the models ability to represent the hydraulic effects of components of the temporary south Delta facilities.

The boundary conditions used in this evaluation effort included:

- Tidal stage at Martinez @ 15 minute intervals
- Opening and closing times of the Clifton Court gates
- Daily average rim flows and export rates from DAYFLOW

The construction schedule for the temporary south Delta facilities and the Old River fish barriers was:

- Old River fish barrier: April 9 – 16
- Middle River barrier: April 3 – 7
- Grantline Canal Barrier: May 15 – June 4 (beyond the observed data record)
- Old River (@ DMC) barrier: April 8 – 17

During temporary barrier construction, the current pattern is disrupted and cannot be rigorously included in the model. Therefore, only the period before and after the construction is presented herein. The in-Delta flow and stage data stations included the following stations. The two flow stations provide the only flow data available within the southern Delta for this time period.

- Stage in Grantline Canal at Tracy Bridge
- Stage in Old River at the DMC (east of the temporary barrier)
- Flow in Victoria Canal
- Flow in Grantline Canal at Tracy Bridge (discontinued on April 17)

Figures A.2, A.4, A.6 and A.8 show the stage and flows for these data stations for the period from April 4 through April 10 (before closure of all barriers except Middle River). The 6-day time scale was designed to provide adequate temporal resolution. The remaining figures show the corresponding flow or stage response for the period of April 16 through April 22 (after closure of all barriers except Grantline Canal). The barrier configuration assumed within the model reflected these conditions.

Figure 1 shows the boundary tide for the entire period. The variations seen in this figure help explain some of the relative differences seen on the plots for the two time periods of the remaining figures.

Figures A.2 and A.3 show that there is little impact of the barriers on the Grantline Canal stage. Figures A.4 and A.5, however dramatically demonstrate the impacts of the Old River @ the DMC barrier on stage east and adjacent to the barrier. These four figures show that the model adequately represents the magnitude and phasing of tidal stage at these locations with and without temporary barriers.

Figures A.6 and A.7 show that the model under predicts the amplitude of the flow in Victoria Canal by up to 15%. Victoria Canal and the Old River north of Clifton Court are the dominant sources of water for the export pumps. Any underproduction of flow in Victoria Canal would be compensated by flows in the Old River (alternative flow path). The spikes seen in the computed velocity result from the abrupt operation of the Clifton Court gates. Figures A.8 and A.9 show the computed and observed flow in Grantline Canal at Tracy Bridge. These results demonstrate that the model accurately represents the magnitude and phasing of intratidal flows in the dominant flow path to the southeastern portion of the Delta under both barrier configurations.

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APPENDIX H  
FOOTHILL ASSOCIATES  
PLANT AND ANIMAL SPECIES

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## Plant and Animal Species Observed within the Project Area

Scientific Name	Common Name
<b>Plants</b>	
<i>Avena sp.</i>	Wild oats
<i>Brassica nigra</i>	Black mustard
<i>Bromus diandrus</i>	Ripgut brome
<i>Centaurea solstitialis</i>	Star thistle
<i>Eremocarpus sp.</i>	Dove weed
<i>Loilum sp.</i>	Rye
<i>Malva neglecta</i>	Common mallow
<i>Phalaris canariensis</i>	Canary grass
<i>Picris echioides</i>	Prickly ox leaves
<i>Polypogon sp.</i>	Rabbitsfoot grass
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood
<i>Quercus lobata</i>	Valley oak
<i>Rumex crispus</i>	Curly dock
<i>Salix exigua</i>	Narrow-leaved willow
<i>Salix gooddingii</i>	Goodding's black willow
<i>Salosa tragus</i>	Russian thistle
<i>Silybum marianum</i>	Milk thistle
<i>Sonchus asper</i>	Prickly sow tongue
<i>Stephanomeria sp.</i>	Stephanomeria
<i>Toxicodendron diversilobum</i>	Poison oak
<i>Typha sp.</i>	Cattail
<i>Xanthium strumarium</i>	Cocklebur
<b>Animals</b>	
<b>Birds</b>	
<i>Agelaius phoeniceus</i>	Red-winged blackbird
<i>Corvus brachyrhynchos</i>	American crow
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Casmerodius albus</i>	Great egret
<i>Cathartes aura</i>	Turkey vulture
<i>Euphagus cyanocephalus</i>	Brewer's blackbird
<i>Hirundo pyrrhonota</i>	Cliff swallow
<i>Passerculus sandwichensis</i>	Savanna sparrow
<i>Sturnella neglecta</i>	Western meadowlark

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**APPENDIX I**

*Foothill Archaeological Services – Cultural Resources*

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A CULTURAL RESOURCE SURVEY AND ASSESSMENT  
OF THE  
WASTEWATER TREATMENT PLANT EXPANSION  
CITY OF TRACY, SAN JOAQUIN COUNTY, CALIFORNIA

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## MANAGEMENT SUMMARY

The City of Tracy plans to enlarge the existing wastewater treatment plant. The Wastewater Treatment Plant Expansion project includes expansion of the existing wastewater treatment facility, and potential pipeline alignments from the treatment facility to the outfall location. The majority of the pipeline alignments will be in existing roadways: Arbor Avenue to MacArthur Avenue to Delta Avenue, or Arbor Avenue to Laurel Avenue to Canal Avenue to Tom Paine Avenue to Delta Avenue. The outfall location is on Doughty Cut northwest of Old River and the existing outfall. The project is located on the north side of Tracy, San Joaquin County, California.

Records searches, Native American and historical society contacts and an intensive field survey resulted in the identification of two resources: MacArthur Drive at Tom Paine Slough Bridge (Caltrans Bridge #29C-0313) and the Laurel Road at Tom Paine Slough Bridge (Caltrans Bridge #29C-0283). Both bridges have been previously evaluated under contract with the California Department of Transportation. Both bridges were considered not eligible for the National Register of Historic Places.

As a result of the present study, the consultant recommends that a finding of "no adverse effect" is appropriate, because it does not appear that the project will alter, directly or indirectly, the characteristics of any historic property that qualify said property for inclusion in the National Register of Historic Places.

While unlikely, it is possible that ground disturbing activities directed by the project may encounter archaeological resources. It is the consultant's recommendation that any Memorandum of Agreement should address this possibility.

If human remains are discovered during the project, California law requires that work must stop immediately and the county coroner must be notified, according to Section 7050.5 of California's Health and Safety Code. The Native American Graves Protection and Repatriation Act (Public Law 101-601) also requires the protection of human remains and associated artifacts discovered on federal land.

## ACKNOWLEDGMENTS

The following document was prepared under the recently revised federal regulations at 36 CFR Part 800. Guidance was provided by the Advisory Council on Historic Preservation during an August 5, 1999 briefing in Sacramento to consultants, agency personnel and others. Special thanks are extended to John Fowler, Executive Director of the Advisory Council's Denver office for responding at length to specific questions on Native American consultations and interfacing with federal agencies.

Thanks are also extended to Francis A. Riddell, M.A., Doctor Honoris Causa for his discussions on Tulare Lake archaeology and the antiquity of Man in California.

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## INTRODUCTION

The City of Tracy plans to enlarge the existing wastewater treatment plant. The Wastewater Treatment Plant Expansion project includes expansion of the existing wastewater treatment facility, and potential pipeline alignments from the treatment facility to the outfall location. The project is located on the north side of Tracy, San Joaquin County, California. The majority of the pipeline alignments will be in existing roadways: Arbor Avenue to MacArthur Avenue to Delta Avenue, or Arbor Avenue to Laurel Avenue to Canal Avenue to Tom Paine Avenue to Delta Avenue. The outfall location is on Doughty Cut northwest of Old River and the existing outfall (see figures 1 and 2).

### Regulatory Background

The purpose of the present study is to assist the federal funding agency in meeting its responsibilities under Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. §470). Federal funding is anticipated for the Wastewater Treatment Plant Expansion.

A Section 106 review is a federal review, separate from any environmental or planning reviews required by State and local laws and ordinances. The purpose of Section 106 is to avoid unnecessary harm to historic properties, which include any National Register of Historic Places listed or eligible prehistoric or historic objects, sites, buildings, structures or districts (National Park Service 1991: Appendix IV-2).

Under the new federal regulations at 36 CFR Part 800, effective June 17, 1999, the basic steps in a Section 106 review include:

- **Initiating the Section 106 process** (a new step to encourage early consideration of the potential effects of the federal permitting or other action, to coordinate with other reviews, to identify consulting parties such as the State Historic Preservation Officer and Federally recognized Indian tribes, and to make plans for other public involvement);
- **Identifying historic properties** (the federal agency is responsible for defining the Project area, which, in the case of permits, may be larger than the permit area; also included in this step is the identification of cultural resources, evaluating the eligibility of those resources for the National Register, including sites to which Indian tribes attach religious and cultural significance, determining the eligibility of those resources for the National Register and determining whether or not historic properties will be affected);
- **Assessing Adverse Effects** (the federal agency must consider both direct and indirect effects, reasonably foreseeable effects that are cumulative, later in time or at a distance, and with respect to all qualifying characteristics of a historic property--e.g., if an archaeological site is important for its scientific information potential and for its cultural or religious importance to an Indian tribe, then the adverse effects on both must be considered).
- **Resolving Adverse Effects** (the process of negotiating a Memorandum of Agreement between the consulting parties is now streamlined and may involve only the federal agency and the State Historic Preservation Officer as signatories. However, the Advisory Council recommends that the federal agency should invite federally-recognized Indian tribes that attach religious and cultural significance to properties off tribal lands to concur with the findings in the MOA (John Fowler, personal communication 1999). There is no longer a distinction between "consulting parties" and "interested persons." The term "interested persons" has been dropped from the new regulations.

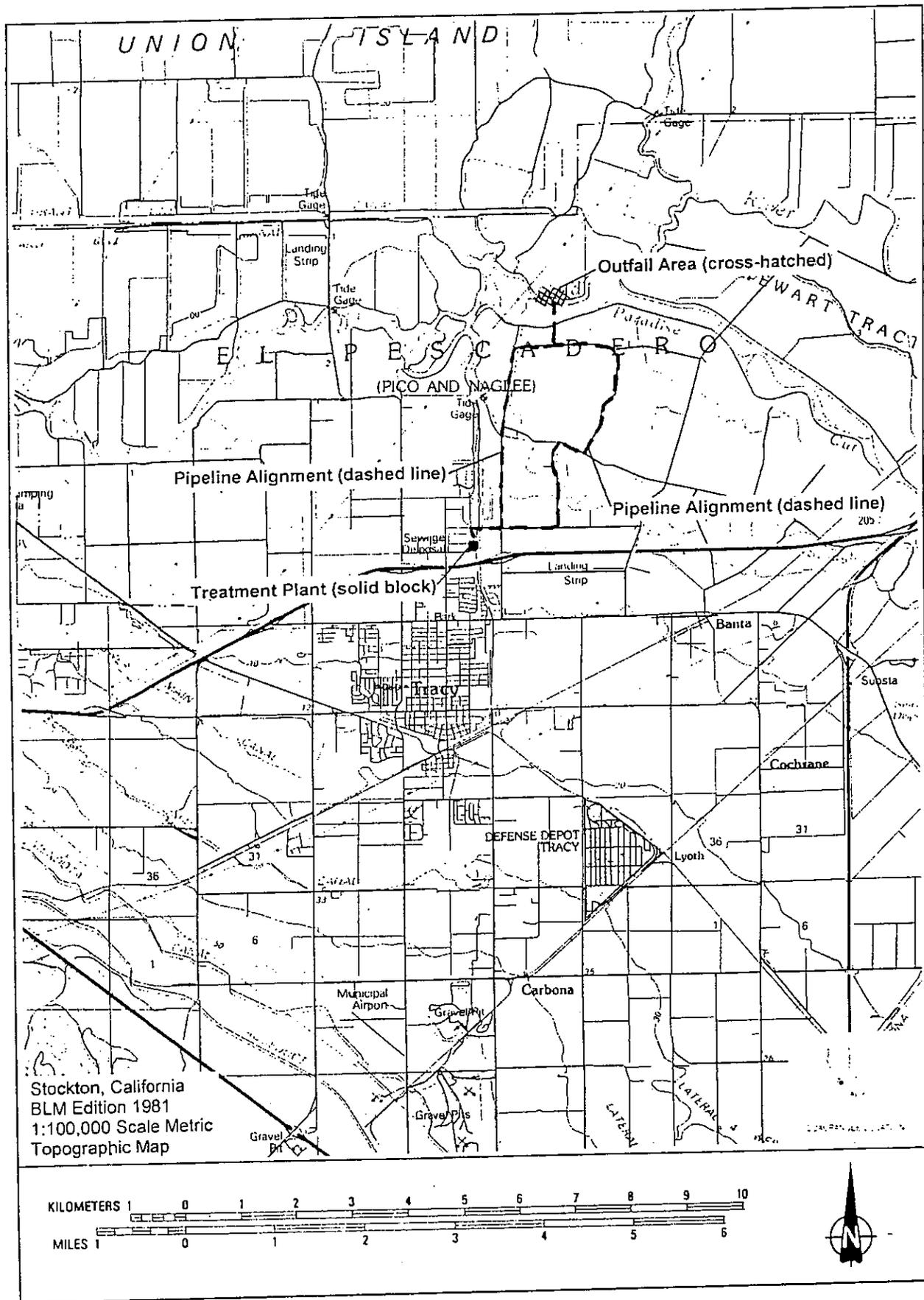


Figure 1. Location of Tracy Wastewater Treatment Plant Expansion project.

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APPENDIX I  
FOOTHILL ARCHAEOLOGICAL SERVICES  
CULTURAL RESOURCE  
SURVEY AND ASSESSMENT

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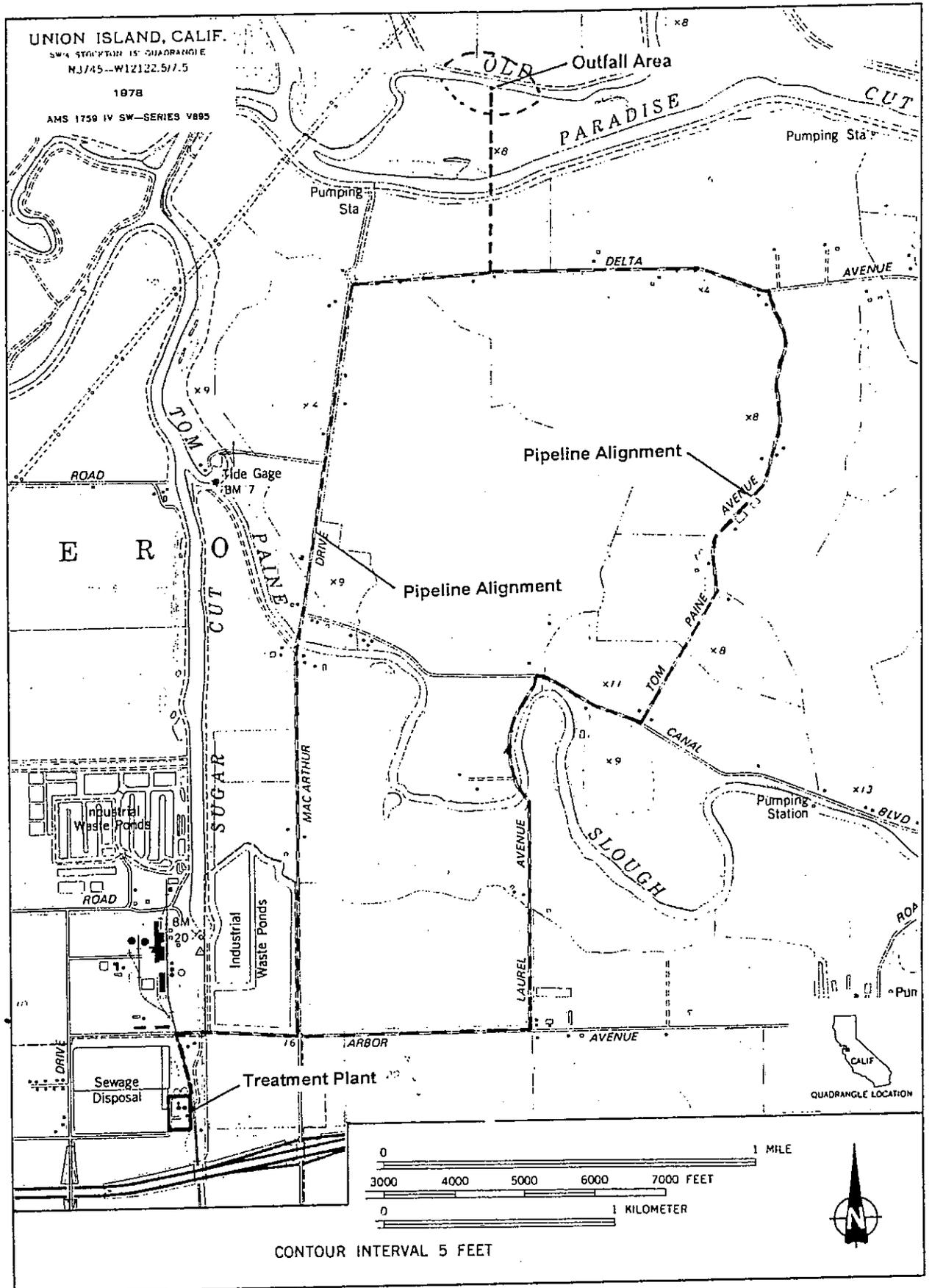


Figure 2. Tracy Wastewater Treatment Plant Expansion project area.

Under federal regulations where, for example, federal funding or permitting is involved, a consultant may gather information necessary for the federal agency to meet its responsibilities under Section 106, but the applicant's consultant must not initiate consultations with Indian tribes and others without authorization from the federal agency official [36 CFR Part 800.2(a)(3) and 800.2(c)(5)]. The consultant *may* gather information from Indian tribes regarding the identity of and concerns for important religious and cultural sites (John Fowler, personal communication 1999). However, in accordance with 36 CFR Part 800.2(c)(3)(ii and iii), the federal government has a unique legal relationship with Indian tribes set forth in the Constitution of the United States, treaties, statutes and court decisions, and, therefore, consultations must recognize this government-to-government relationship.

California law protects Native American burials, skeletal remains and associated grave goods on non-federal lands regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code section 7050.5, California Public Resources Code sections 5097.94 *et seq.*).

### **The Present Study**

The present study was guided by an initial records search and an updated records search as project boundaries changed. Both records searches were conducted by the Central California Information Center, California Historical Resources Information System. The records searches provided information on all historical resources located within and near the project area. The Native American Heritage Commission also provided the results of a sacred lands file search and list of Native American contacts. The consultant apprised Native American and historical society contacts of the project and requested information and concerns regarding cultural resources in the project vicinity.

The field survey was conducted by John W. Foster, an archaeologist whose qualifications exceed the Secretary of the Interior's Professional Qualifications Standards in prehistoric and historical archaeology. The consultant conducted additional archival research, as needed, to complete the technical report.

### **SETTING**

The present study encompasses an expansion of the existing wastewater treatment facility, and potential pipeline alignments from the treatment facility to an outfall location on Doughty Cut northwest of Old River and the existing outfall. The project is situated in a near sea-level region of sloughs drained by the Old River. The potential pipeline alignments and the outfall lie in an area that is largely rural farmland. The treatment plant is located on the north edge of Tracy's built environment.

Soils of the area are rich dark clay loams typical of those found throughout the Central Valley. These soils are very productive for agriculture (Kunit and Calhoun 1974). The valley climate is Mediterranean. Mean temperatures in January fall between 40 and 50 degrees. In July, temperatures average 70-80 degrees in the Delta locality and 80-90 degrees on the valley floor to the north and south. Summers are hot, particularly in the San Joaquin Valley. The Central Valley was immensely attractive to early inhabitants. The plains and wetlands teemed with game and offered rich vegetation as food resources.

### **HISTORIC CONTEXTS**

Identification, evaluation and treatment of historic properties are most reliable when there is an understanding of the relationship between those properties and other similar cultural resources. Standard I of the Secretary of Interior's Standards and Guidelines defines the concept of "historic

context" as information on aspects of history, architecture, archaeology, engineering and culture that are collected and organized to define those relationships (National Park Service 1983:44717).

Historic contexts are based on cultural themes, their geographical extent and time period. Any particular historic context describes the "significant broad patterns of development in an area that may be represented by historic properties." Prehistory, Native American ethnohistory, agriculture and the railroads are the dominant themes for cultural resources in the general area of Tracy's Wastewater Treatment Plant Expansion project.

#### **Prehistory, San Joaquin Valley (10,000 B.C.- A.D.1800)**

The San Joaquin Valley remains one of the least-known areas in California regarding prehistory. Surface surveys of the Tulare Lake region have produced Clovis projectile points, which probably date back 10,000 years (Riddell, personal communication 2000). Other than the salvage of late-period Yokuts burial sites, large-scale excavations have been limited mainly to Wedel's early work at Buena Vista Lake in the south and a series of projects at San Luis, Los Banos and Little Panoche reservoirs on the lower east slope of the Coast Range south of Tracy. The age of archaeological components excavated by Wedel's field teams has not been determined by chronometric methods such as radiocarbon dating. However, cross-dating of artifacts would indicate periods of significant occupation between circa 2000 B.C. and A.D. 500 and from circa A.D. 1500 to 1850.

Cultural affiliations with the Santa Barbara coast and the Mojave Desert are apparent at Buena Vista Lake, whereas Delta traits are few during late prehistoric times. In the Panoche-San Luis vicinity, a long series of archaeological phases is broken by a hiatus between circa A.D. 1000 and 1500, which may relate to a dry climatic interval. Otherwise, this sequence parallels that of the Delta with notable elements from the South Coast ranges. Findings at Buena Vista Lake and Panoche-San Luis indicate that Native American populations expanded and settlements proliferated after circa A.D. 1500 in the southern and western portions of the San Joaquin Valley (Moratto 1984:215).

#### **Ethnohistory/Ethnography, Western San Joaquin Valley (1800-1850)**

The Tracy area was occupied by the Northern Valley Yokuts at the time of European-American contact. These Penutian speakers made their home in the central portion of California. The native groups speaking Northern Yokuts dialects ranged from the Calaveras River on the north to the southern extent of the San Joaquin River to the south. Their territory also included lands from the crest of the Diablo Range on the west to the foothills of the Sierra Nevada on the east.

The Northern Yokuts were part of a larger population that occupied much of the San Joaquin Valley as well as the foothills on the east and west sides of the valley. There were over 50 different dialects of the Yokuts language, which were remarkably homogeneous from north to south over the 250 mile range inhabited by Yokuts-speaking peoples.

Unfortunately, very little is known of Yokuts societies. The lower or northern San Joaquin Valley is one of the least known ethnographic areas of California. The lack of information concerning the aboriginal inhabitants of this region is due to their rapid disappearance as the result of disease, missionization and the sudden overrunning of their country by miners and settlers during the gold rush (Wallace 1978:462).

The San Joaquin River formed the core territory of Northern Yokuts groups. Along its northern extremities, it formed a wide, tule-choked ribbon of fresh water with many sloughs and shallows which formed an exceedingly rich habitat for plants and animals, as well as the natives who exploited them. Wallace argued that northern Yokuts tribes were relative late comers to this region, having expanded their territory in the northern San Joaquin Valley just a few centuries prior to the arrival of Europeans.

Yokuts villages were situated on natural rises in close proximity to major streams. Each of these settlements was occupied by several hundred people year round. Baumhoff estimated a population of 31,404 for the Northern Yokuts based on resources and carrying capacity (1963:221). Kroeber

estimated about one-third of the Baumhoff figure (Kroeber 1939:137).

Fishing was the most important subsistence activity among Northern Yokuts groups along with taking waterfowl and hunting (Wallace 1978:464). Tule elk and pronghorn antelope once populated the valley in great numbers. These animals provided the major game resource for Yokuts hunters. Deer, rabbits, hares, rodents and snakes were also eaten. Acorns were the principal non-animal staple.

The Tracy area is located midway between the centers of two Northern Yokuts tribelets: the *Chulamni* (or *Cholburne*) to the north, and the *Hoyumne* to the southeast. Latta estimated the aboriginal population of the *Hoyumne* at 450 (1977:126). The *Chulamni* who lived near Tracy built their villages along the banks of the Old and San Joaquin rivers, and along creeks in the Diablo Range. The largest village site of the *Chulamni* tribelet near Tracy, Pescadero ("fishing place"), was named by Spanish explorers during their first expeditions in 1810 and 1811 (Hoover et. al. 1966:368).

### Transportation and Agriculture, Tracy Vicinity (1775- 1950)

In 1869, a railroad line was constructed through what is now the City of Tracy. The round house, shop, yards and a hotel were built in Lathrop, which became the center of railroad business and headquarters for the Central Pacific Railroad in the San Joaquin Valley. Due to the volume of business, the railroad found it necessary to build a coaling station at the foot of the Livermore Hills, 14 miles west of Lathrop. The new station was called Ellis, which prompted Tracy's initial growth. Ellis was established near a settlement called "Wickland," which was founded in 1861 on Old River. This was a loading point for coal shipments. Since the inhabitants of Wickland believed that Ellis would soon prosper, they moved to Ellis. As a result, the town of Ellis grew quite rapidly. By November, 1870, Ellis boasted 45-50 buildings including two hotels, a store, blacksmith shop, warehouse, saloon and livery stable. However, ten years later, Ellis was practically deserted (Tinkham 1923:301).

In 1870, the Southern Pacific Railroad Company and the Central Pacific Railroad Company merged to become the Southern Pacific Company. In September, 1878, the new company built a branch railroad to San Francisco by way of Martinez and extended the road along the west side of Fresno creating a junction about three miles east of Ellis. Tracy was founded at this new railroad junction on September 8, 1878. Railroad officials, seeing no reason for continuing the coal-loading station at Ellis, moved some of the families in Ellis to Lathrop. Others were moved to the new railroad station at Tracy. With the realization that their town was doomed, the remaining residents of Ellis decided that Tracy would become the leading center and moved their business offices and homes to the new railroad station.

Historical events near the project area were probably dictated more by activities in Corral Hollow than in Tracy or Ellis. Corral Hollow is California Historical Landmark No. 755. An early road was mapped in the 1859 government land survey and named, "Stockton to Corral Hollow Road." A branch of this road is located in Section 31 of Township 2 south, Range 5 east of the Mt. Diablo Meridian.

Corral Hollow, probably the site of a prehistoric Indian village, was known as "El Arroyo de los Buenos Aires." The site was located on an old Spanish trail, El Camino Viejo. Juan Bautista de Anza passed this way in April, 1776. Spanish and Mexican *vaqueros* made customary use of the trail. During the gold rush, the old trail was used as a road to the southern mines.

One of the first white settlers in the hollow was Edward B. Carrell. Carrell and three associates built a tavern called, "Zink House." The tavern served meals and liquor to travelers for many years.

In 1856, John O'Brien, a sheepman who established his camp at Corral Hollow, discovered an outcropping of a black mineral at the upper end of the canyon about nine miles from the Zink House. The mineral was coal.

The Pacific Coal Mining Company was subsequently organized and this, in turn, became the Commercial Mine and the Eureka Mine (Hoover et al. 1966:377). The Commercial coal Mining Company was incorporated to develop the mine and in 1894, ownership passed to the Treadwell brothers who had made a fortune in the Alaska gold fields. The Treadwells named the coal property,

"Tesla Mine" in honor of Nikola Tesla, the great inventor. The Treadwells expended nearly a million dollars in improvements including acquisition of the Alameda and San Joaquin Railroad to transport coal to Stockton where they believed the product could be sold to power the railroad as well as steamboats. By 1896, the company began hauling coal to Stockton (Tinkham 1923:254).

The 1906 earthquake and the introduction of California oil as the new fuel of industry brought the Treadwells' plan to a halt. Only the wreckage of abandoned dumps marks the site of the Tesla Mine and only a few ruins and exotic trees mark the sites of town life and industry in Corral Hollow.

In addition to the coal industry, before Tracy was founded, pioneer settlers of the west side of the San Joaquin valley practiced dry farming of grain. The establishment of the railroad line provided a more efficient method of transporting the grain to larger markets creating a prosperous cash crop farming economy. The production of grain products remained the dominant agricultural activity until the early twentieth century when grain prices fell worldwide due to overproduction (Hillman and Covello 1985:69).

In search of a more diverse selection of crops, farmers in the area proposed the construction of a canal from Old River (San Joaquin River) to head near the old abandoned townsite of San Joaquin City. This campaign of 1913-1914 led to the creation of the Westside Irrigation District. The district was created one year after real estate operators had subdivided land to the east, installed a pump at Old River, and began pumping water to form the Naglee Burk Irrigation Association in 1912 (California Department of Public Works 1928:161).

In 1915, a bond issue approved by an overwhelming majority assured the construction of a canal system for the Westside Irrigation District. Water allowed the local farmers to diversify into growing lima beans, alfalfa, asparagus, orchards and truck farming crops. Dairy farming grew rapidly in the late teens and into the 1920s. Later, farmers added sugar beats, tomatoes and alfalfa hay to supply the Holly Sugar Company, H.J. Heinz Company and the San Joaquin Valley Hay Growers Association (Hillman and Covello 1985:69-70).

From their inception, Irrigation districts in the area had drainage problems. Excessive application of water caused a rise in the water table and a decrease in productivity on much of the land. In 1925, the Westside Irrigation District and the Naglee Burk Irrigation District entered into an agreement by which Westside excavated a drainage channel along Grant Line Road and connected this ditch with the Naglee Burk District outlet. Under this agreement, Westside Irrigation District was given a perpetual right to use the Naglee Burk outlet for the cost of \$300 per year for five years. The approximately 13,000 feet of drainage canal was extended east for about one mile to connect it to the Naglee Burk drainage ditch in 1927. In 1928, an additional bond issue of \$50,000 was requested for canal lining and more drainage ditches adding to the extensive drainage system already present within the Westside Irrigation District. The drainage system eased the water problems in the area and farming continued to prosper (California Department of Public Works: 1928).

While farming continued to be the mainstay of Tracy's economy, the widening and construction of interstates 580 and 205 have given Tracy new life as a bedroom community to the Bay Area. Since the late 1980s, the eight lanes of highway over the Altamont Pass have attracted many new residents wishing to find affordable housing close to the Bay Area (Hillman and Covello:74). The added communities have created the need for additional storm drainage alternatives and the Westside Irrigation District drainage canal will once again help ease the drainage problems in the Tracy area.

## RECORDS SEARCH

Two separate records searches were conducted for the City of Tracy Wastewater Treatment Plant (see Appendix A: Records Search Results). The first encompassed the original project area, an existing outfall route and a ¼ mile radius around the entire project area. The second encompassed an expanded project area, three outfall alternates and a ½ mile radius. The final project area was reduced to a single outfall.

The Central California Information Center, California Historical Resources Information System, completed the first records search for the City of Tracy wastewater treatment plant expansion area on September 21, 2000. The information center's letter report indicated that five previously recorded archaeological sites were located within the project area. Three of the sites are prehistoric sites and two are historic. (One is a trash scatter and the other is an unrecorded section of the Southern Pacific Railroad line.) Five surveys have been performed within the project area and two surveys were performed within the ¼ mile radius. However, when the project area was altered four of these sites are now located outside of the project area. The three prehistoric sites are completely outside the project area and the historic trash scatter is located within the ½ mile radius. The segment of the Southern Pacific Railroad is near the project area.

The records search also indicated that the outfall system crosses the MacArthur Drive at Tom Paine Slough bridge (Caltrans Bridge #29C-0313). However, Caltrans has determined that the bridge is ineligible for the National Register of Historic Places. Also listed within the project area were the Holly Sugar plant (originally, 1917, the site of the Pacific Sugar Company plant) and the Holly Sugar railroad line.

The Central California Information Center, California Historical Resources Information System, completed the second records search for the City of Tracy wastewater treatment plant expansion area and the three outfall system routes on November 1, 2000. The information center's letter indicated that the only historic resource located within the project area is the Tom Paine Slough at Laurel Road bridge (Bridge #29C-0283). However, Caltrans determined that the bridge was ineligible for the National Register of Historic Places.

After revisions to plans regarding the expansion project, only two cultural resources may be affected by the project: the MacArthur Drive at Tom Paine Slough bridge (Caltrans Bridge #29C-0313) and the Laurel Road at Tom Paine Slough bridge (Bridge #29C-0283).

## CONSULTATIONS

The term "consultations" is used here to denote discussions or meetings. These discussions and meetings were not intended as consultations that can only be conducted by authorization from the appropriate federal agency official [36 CFR Part 800.2(a)(3) and 800.2(c)(5)].

### Native American Contacts

Under the new federal regulations effective in 1999, federal agencies must consult under Section 106 with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to an affected historic property. The Department of the Interior is currently working on a list to help identify the appropriate tribes with which to consult (John Fowler, personal communication 1999).

In lieu of working from a Department of the Interior list, the consultants contacted the California Native American Heritage Commission and requested a search of its sacred lands file and a list of Native American contacts (see Appendix B: Consultations). In an October 11, 2000 letter to the consultants, the commission responded. The commission's letter report indicated that its file search failed to show the presence of Native American cultural resources in the immediate project area. The commission also provided a short list, which included one Native American representative, Ms. Katherine Erolinda Perez.

The consultant contacted Ms. Perez by letter written on December 18, 2000. On January 8, 2001, Ms. Perez responded by telephone. She indicated that there were Native American cultural resources in the vicinity of the project, but declined to state if they were immediately adjacent to, or within areas that would be impacted by the project. Ms. Perez asked where the pipelines would be excavated in relation to the roads. Ms. Perez also asked if such excavations would be in virgin soil (as opposed

to fill). Ms. Perez asked for a copy of the technical report; the consultant responded that he would pass along her request, as the consultant had no legal authority to grant her wish.

### Other Contacts

The consultant also contacted the Tracy Historical Society in a December 18, 2000 letter, which described the project, included a map of the project area and asked for any information or concerns regarding cultural resources in the area.

The Tracy Historical Society's representative responded by telephone. She indicated that there were Native American cultural resources in the vicinity of the sugar plant, but did not indicate if any would be disturbed by the project. The consultant explained that the project had changed since the letter requesting comments was mailed. The westernmost and middle outfalls were no longer feasible. The representative did indicate that trenching for the pipeline may encounter Native American sites. The representative planned to bring the consultant's letter to the attention of other members during the society's meeting on the afternoon of January 8, and will respond to the consultant by letter.

## FIELD SURVEY METHODS

The Wastewater Treatment Plant Expansion project area was completely surveyed by an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric and historical archaeology. The field survey included the expansion area within the treatment plant itself, as well as the potential pipeline corridors and outfall location.

The treatment plant expansion will take place immediately west of existing ponds and facilities. This area was closely inspected on foot to the western boundary of the fenced plant site. A series of transects were walked in a regular pattern with a three meter line spacing maintained. All open areas not occupied by tanks, buildings or roadways were covered in this survey.

The pipeline alignment was likewise closely inspected. The roadbed of the railroad spur line as well as the margins of Arbor Avenue, MacArthur Drive, Delta Avenue, Tom Paine Avenue and Laurel Avenue were closely examined on foot. Plans call for buried pipe segments placed in the roadbed between the treatment plant and the outfall location on the south bank of Old River. Therefore, all potential routes were carefully examined on foot by the field archaeologist. Each side of the road alignment was covered. Particular attention was paid to stream crossings where some deviation from the roadbed might be necessary. Complete coverage of the road corridor was attained.

The northern alignment of the outfall pipe between Delta Avenue and Old River was also carefully inspected by the field archaeologist. This segment of the pipeline will carry north from Delta Avenue, under Paradise Cut to the south bank of Old River. There, a dissipation system will release the pipe's contents into the river. Plans call for microtunneling under Paradise Cut and any riparian vegetation to minimize surface disturbances. This portion of the project area was also closely reviewed for cultural resources. The tentative alignment was walked in a series of transects with line spacing maintained at 10 meters. Complete coverage was attained by the field archaeologist.

An implicit research design was used. With an understanding of the background history and ethnography, the field archaeologist looked for all signs of archaeological evidence. These included lithic tools and flakes, ground stone implements, clay objects, rock art, bedrock mortars or milling slicks, bone, chipping debris and artificial surface depressions that could be the remains of Northern Yokuts houses or activities.

Porcelain, glass, nails, bricks, wire, rock alignments, roads and foundations were sought for signs of historic land use. The field archaeologist was particularly cognizant of possible railroad, mining, brickwork and agricultural use that may have been carried out in thinity of the project area and left its mark on the landscape.

## DESCRIPTION OF CULTURAL RESOURCES

The present study resulted in the identification of two cultural resources, both of which were documented in the records searches: MacArthur Drive at Tom Paine Slough bridge (Caltrans Bridge #29C-0313 and the Laurel Road at Tom Paine Slough bridge (Caltrans Bridge #29C-0283). Both bridges have been previously evaluated under contract for the California Department of Transportation. Both bridges were considered not eligible for the National Register of Historic Places (see Appendix A: Records Search Results).

No other historic or prehistoric resources were identified by the field archaeologist within the project area.

## EVALUATIONS

Generally, a historic site, object, building, structure or district is eligible for listing on the National Register of Historic Places if it is older than 50 years, possesses integrity of location, design, setting, materials, workmanship, feeling and association, and meets at least one of the following criteria (National Park Service 1991):

- A. Association with events that have made significant contributions to the broad patterns of United States history.
- B. Association with the lives of people important in United States history.
- C. Embodies the distinctive characteristics of a type, period, or method of construction; or represents the work of a master, or possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction;
- D. Has yielded or is likely to yield information important in prehistory or history.

### Individual Properties

No National Register listed or eligible historic properties were identified by the field archaeologist within the project area.

### Districts

A "district" is usually defined as "... a grouping of sites, buildings, structures, or objects linked historically by function, theme or physical development or aesthetically by plan; the properties within a district are usually contiguous" (Townsend et al. 1993:9).

No National Register listed or eligible districts were identified by the consultant within the project area.

## POTENTIAL EFFECTS

For purposes of the National Historic Preservation Act, Section 106 review, "effect" is defined as "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" [36 CFR Part 800.16(i)].

While alteration of the setting of an archaeological site eligible only for its information potential may

not affect the site's significant characteristics, alteration of a property's location (e.g., removing or damaging all or part of the site) may have a significant adverse effect.

Because no historic properties (National Register-eligible historic or prehistoric resources) were identified by the field archaeologist within the project area, it is the consultant's opinion that a conclusion of no historic properties affected is appropriate.

While unlikely, it is possible that ground disturbing activities directed by the project may encounter archaeological resources. It is the consultant's recommendation that any Memorandum of Agreement should address this possibility. If human remains are discovered, California law requires that work must stop immediately and the county coroner must be notified, according to Section 7050.5 of California's Health and Safety Code. The Native American Graves Protection and Repatriation Act (Public Law 101-601) also requires the protection of human remains and associated artifacts discovered on federal land.

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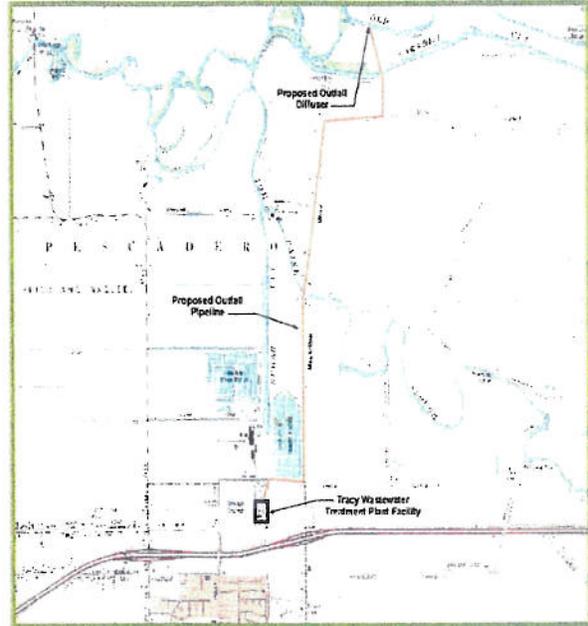
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# TRACY WASTEWATER TREATMENT PLANT EXPANSION FINAL ENVIRONMENTAL IMPACT REPORT

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SCH No. 2000012039



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SEPTEMBER 2002

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**FINAL ENVIRONMENTAL IMPACT REPORT**

**FOR THE**

**TRACY WASTEWATER TREATMENT PLANT EXPANSION**

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**SEPTEMBER 2002**

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# INTRODUCTION

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**1.1 PURPOSE OF THE EIR PROCESS**

This Final Environmental Impact Report (Final EIR or FEIR) is an informational document prepared by Pacific Municipal; Consultants on behalf of the City of Tracy ("City") in order to evaluate the environmental impacts of the Tracy Wastewater Treatment Plant ("WWTP") Expansion. The primary objectives of the EIR process under the California Environmental Quality Act (CEQA) are to inform decision makers and the public about a project's potential significant environmental effects, identify possible ways to minimize the significant effects and describe reasonable alternatives to the project.

**1.2 DOCUMENT FORMAT**

As prescribed by CEQA Guidelines Section 15088, the Lead Agency (City of Tracy) is required to evaluate comments on environmental issues received from persons who have reviewed the Draft Environmental Impact Report ("Draft EIR" or "DEIR") and prepare written responses to these comments. This FEIR contains individual responses to each written and verbal comment received during the public review period for the Draft EIR (Section 2.0). This FEIR also notes all changes, corrections and additions made to the EIR text between the Draft and Final stages as a result of comments received on the Draft EIR. These changes set forth in Section 3.0 of this document, as well as minor City-initiated changes, are incorporated into the Final EIR.

**1.3 EIR CERTIFICATION PROCESS AND PROJECT APPROVAL**

In accordance with the requirements of CEQA and the procedures of the City of Tracy, the City Council must certify the FEIR as complete and adequate prior to taking action on the project. Once the FEIR is certified and all information considered, using its independent judgment, the City can take action to implement the project, make changes, or select an alternative to the project. While the information in the FEIR does not control the City's ultimate decision on the project, the City must respond to each significant impact and mitigation measure identified in the FEIR by making findings supporting its decision under Section 15091 and 15093 of the CEQA Guidelines.

**1.4 MITIGATION MONITORING PROGRAM**

As part of the FEIR process, a Mitigation Monitoring and Reporting Program (MMRP) for the project has been prepared. California Public Resources Code Section 21081.6 requires public agencies to adopt mitigation monitoring or reporting programs whenever certifying an EIR or a mitigated negative declaration. The intent of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions for a project.

The MMRP for the project is intended to satisfy the requirements of CEQA as they relate to the project. It is to be used by City staff, participating agencies, the project applicant and contractors, and mitigation monitoring personnel during implementation of the project. The MMRP has been prepared as a separate document from the Final EIR and is provided under separate cover.

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**2.1 INTRODUCTION**

As described in the Draft EIR, the purposes of the proposed project are to: (1) expand the City's capacity for wastewater treatment and disposal from 9.0 million gallons per day (mgd) to 16.0 mgd Average Dry Weather Flow (ADWF); and (2) improve the quality of effluent discharged from the City's wastewater treatment plant by upgrading its facility from secondary to tertiary treatment. The proposed project is necessary because the NPDES permit for the current facility is expiring, the City is approaching the current facility's capacity, and the City wishes to take advantage of the environmental benefits of advances in wastewater treatment.

The existing wastewater treatment plant was constructed in 1930. To keep pace with the City's population growth, the facility has undergone major expansions in 1947, the mid-1970s, and from 1985-1987. Since the facility's most recent expansion in 1985-1987, the City's population has continued to grow, necessitating the proposed project's expansion of the wastewater treatment plant from the current capacity of 9.0 mgd to a capacity of 16.0 mgd. The City's population grew by 38% from 1980 to 1990, and by an additional 24% from 1990 to 2001. [United States Bureau of the Census Bureau <<http://www.census.gov/population/cencounts/ca1990090.txt>>]. The City anticipates that this rate of population growth will continue – and may increase – as the San Francisco Bay Area continues to lag in providing affordable housing.

The City has designed the proposed project such that it will provide environmental benefits to the region. First, the proposed project was designed to improve the quality of the City's effluent and thus, incrementally improve the receiving waters relative to their current condition. Second, by continuing the discharge of effluent to Old River (rather than attempting to discharge to land), the proposed project continues the City's beneficial contribution to flows in Old River. Although the proposed project's contributions to Old River will vary, they are expected to constitute approximately 12 percent of the water in Old River during dry periods, when the San Joaquin River's contributions to Old River flows are at their lowest.

Comments on the Draft EIR did not identify any new significant environmental impacts. Accordingly, the City directed that a Final EIR be prepared. Responses to comments received during the comment period do not involve any new significant impacts or "significant new information" that would require recirculation of the Draft EIR pursuant to CEQA Guidelines Section 15088.5.

Written comments on the Draft EIR are reproduced on the following pages, along with responses to those comments. To assist in referencing comments and responses, each commentor and issue raised is assigned a number. Responses are coded to correspond with the codes used in the margin of the comment letters. Comments that present opinions about the project, or raise issues not directly related to environmental issues are noted without response.

**2.2 MASTER RESPONSES TO KEY ISSUES**

The majority of comments received on the Draft EIR focused on the proposed project's impacts on water quality, the proposed project's contribution to cumulative impacts on water quality, and the

## 2.0 COMMENTS AND RESPONSES

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adequacy of the Draft EIR's alternatives analysis. As a result, the City has provided the following Master Responses in addition to individual responses to comments:

- A. Project impacts on water quality
  - 1. Data and Methodology
    - a) Data Collected Pursuant to the City's Current NPDES Permit
    - b) Data from the City of Santa Rosa
    - c) Data From the City of Manteca
    - d) Reliance Upon Median Numbers
    - e) The Influence of Tidal Barriers
    - f) The Modeling Technique
      - i) 2001 RMA Modeling vs. 1980 Modeling
      - ii) CORMIX
      - iii) The Worst-Cast Scenario
  - 2. The Significance Thresholds
    - a) The City's Significance Thresholds are More Stringent than the Terms Likely to be Incorporated Into the Proposed Permits
    - b) Mass Loading is not a Relevant Significance Threshold
    - c) The Terms of the State and Federal Anti-degradation Policy are Inapplicable as Significance Thresholds
  - 3. The Adequacy of the Draft EIR's Assessment of the Proposed Project's Impacts on Water Quality
    - a) The Proposed Project's Impacts Upon Total Dissolved Solids and Electrical Conductivity
    - b) Nitrogen
      - (i) Ammonia
      - (ii) Nitrates
      - (iii) Total Inorganic Nitrogen
    - c) Copper
    - d) Dissolved Oxygen
    - e) Organics, Including Bix (2-ethylhexly) Phthalate
    - f) Thermal Impacts and Fisheries
- B. Cumulative Impacts
- C. Consideration of an Adequate Range of Alternatives
  - 1. Consideration of Application of the Discharge to Land
  - 2. CALFED and Barrier Scenarios
  - 3. Consideration of Installation of Advanced Treatment Including Microfiltration/Reverse Osmosis

A. *Project's Impacts on Water Quality*

(1) *Data and Methodology*<sup>1</sup>

Several commentors raised concerns regarding the variety of data sources and the methodology used in the Draft EIR. The following discussion explains why the City relied upon particular data sources and methodologies for different analyses.

(a) *Data Collected Pursuant To The City's Current NPDES Permit*

The City relied upon monitoring data collected pursuant to the City's current National Pollutant Discharge Elimination System ("NPDES") permit to establish the existing conditions of the effluent and the receiving waters. Because this data does not reflect the proposed project's shift from secondary to tertiary treatment, this data is limited in its usefulness of predicting the effect of the effluent from the proposed project on the receiving water. For this reason, and as discussed in Section A.1.b below, data from equivalent municipal tertiary treatment facility is used to project the effect of the proposed project's effluent on the receiving water.

Several commentors requested additional monitoring data for the receiving waters. The City's current NPDES permit requires the City to collect data (via grab samples) from the following monitoring stations: Old River 500 feet upstream from the point of discharge (R-1); Old River 500 feet downstream from the point of discharge (R-2); and Old River 5 miles downstream from the point of discharge (R-3). [Monitoring and Reporting Program No. 96-104 at 2]. The City's current NPDES permit requires the City to analyze the samples obtained for the following water quality parameters:

- (1) Dissolved oxygen (mg/l) at Stations R-1, R-2, and R-3, Weekly
- (2) pH at Stations R-1 and R-2, Weekly
- (3) Turbidity at Stations R-1 and R-2, Weekly
- (4) Temperature at Stations R-1 and R-2, Weekly
- (5) Flow direction (East or West) at Stations R-1, R-2, and R-3, Weekly
- (6) Electrical Conductivity at 25 degrees Celsius (umhos/cm) at Stations R-1 and R-2, Weekly
- (7) Ammonia as Nitrogen (reported as Total and Un-ionized Ammonia) (mg/l) at Stations R-1 and R-2, Monthly

The sampling frequency requirements change from weekly to twice weekly, and from monthly to weekly, when the Grant Line Canal Barrier is in place and the Barrier Project is installed in Old River. [Monitoring and Reporting Program No. 96-104 at 2]. **Table 2-1** provides the monitoring results of Old River for the period January 2000 - December 2001 for: (1) electrical conductivity; (2) pH; (3) dissolved oxygen; (4) temperature; and (5) ammonia. As noted above, this data is not useful for predicting the impact on receiving water quality of the proposed project's effluent for constituents that are significantly reduced by tertiary treatment (e.g., ammonia).

<sup>1</sup> The following comments raised concern regarding the data and methodology relied upon in the Draft EIR: 1-1, 1-2, 1-8, 6-5, 15-7, 15-12, 16-2, 16-15, 17-1, 17-2, 17-3, 17-9, 17-11, 17-12, 17-15, 17-16, 17-21, and 17-22.

2.0 COMMENTS AND RESPONSES

TABLE 2-1  
 AMBIENT DATA FOR OLD RIVER  
 JANUARY 2000 - DECEMBER 2001 - NPDES MONITORING PERFORMED BY THE CITY

Month	Year	EC		pH		DO			Temperature (Degrees F)						Ammonia (mg/l)			Turbidity (NTU)			Flow/Direction					
		R1	R2	R1	R2	R1	R2	R3	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	R1	R2	R3	R1	R2	R3	R1	R2	R3
Jan	2000	825	832	7.77	8	7.6	7.7	7.5	52	55	48	52	56	48	52	55	48	0.4	0.2		12	13		West	West	West
Feb	2000	635	646	7.66	7.8	8	8.1	8	54	55	53	54	55	53	54	55	53	0.5	0.2		41	39		West	West	West
Mar	2000	289	292	7.72	7.9	9.3	9.5	9.3	56	59	54	56	58	54	56	60	54	0.1	0.1		22	20		West	West	West
Apr	2000	452	482	7.89	8	8.7	8.6	8.6	64	66	60	64	66	60	65	66	63	0	0.1		14	13		West	West	West
May	2000	367	384	7.92	8.3	7.6	8.4	7.8	66	74	62	66	74	62	67	74	62	0.1	0.1		14	13		West	West	West
Jun	2000	562	571	8.22	8.7	8.9	9.1	8.8	72	79	67	72	79	67	72	79	68	0.2	0.2		20	20		West	West	West
Jul	2000	538	680	8.36	8.9	7.5	8.7	7.2	75	78	73	75	78	73	75	78	73	0	0.2		24	24		West	West	West
Aug	2000	549	564	8.01	8.5	7.1	6.8	6.2	76	80	69	76	81	69	76	81	69	<0.1	0.2		18	19		West	West	West
Sep	2000	464	493	7.83	8.3	6.8	6.6	5.8	71	72	69	71	72	69	71	73	69	<0.1	0.6		17	17		West	West	West
Oct	2000	475	490	7.66	7.9	6.9	6.4	7	66	71	59	66	71	59	66	71	59	0.2	0.6		17	17		West	West	West
Nov	2000	635	458	7.62	7.9	7.8	8.2	8.4	55	60	52	55	59	52	55	59	52	1.2	0.4		12	10		3W/1E	3W/1E	3W/1E
Dec	2000	792	806	7.7	7.7	8.1	8.1	7.8	51	53	49	51	53	49	51	53	49	0.4	0.7		11	9		West	West	West
Jan	2001	869	879	7.7	7.7	8.7	9	8.6	48	49	47	48	50	47	48	49	47	<1.0	<1.0		10	9		West	West	West
Feb	2001	731	738	7.62	7.7	8.7	8.7	9.3	51	54	49	51	55	49	51	53	48	<1.0	<1.0		16	15		West	West	West
Mar	2001	846	851	7.66	7.9	8.1	8.5	8.6	62	68	55	61	68	55	61	68	55	<1.0	<1.0		29	28		West	West	West
Apr	2001	729	739	7.74	8	9	9.3	9.6	61	64	58	61	64	58	60	62	57	<1.0	<1.0		13	12		West	West	West
May	2001	428	475	7.66	8.2	6.7	6.8	6	71	75	66	71	76	65	71	74	65	<1.0	<1.0		16	18		West	West	West
Jun	2001	585	394	8.31	8.7	4.6	4.6	4.5	75	81	71	75	81	71	75	82	71	<1.0	<1.0		22	21		West	West	West
Jul	2001	800	780	8.14	8.6	4.8	4.9	4	77	79	74	76	78	74	76	78	74	<1.0	<1.0		20	18		West	West	West
Aug	2001	817	806	7.61	7.8	5.3	5.5	5.3	76	78	75	76	77	75	76	77	74	<1.0	<1.0		15	14		West	West	West
Sep	2001	752	751	7.72	7.8	7.4	7.8	7.2	72	74	71	72	73	71	72	73	72	<1	<1		14	14		West	West	West
Oct	2001	629	686	7.71	8.1	5.8	5.3	6	66	68	63	66	68	63	66	70	62	<1.0	<1.0		9	10		West	West	West
Nov	2001	675	701	7.5	8	8.5	7.7	7.9	57	61	52	58	62	52	58	61	52	<1	<1		10	11		West	West	West
Dec	2001	804	821	7.26	7.6	7.2	7.7	8.4	51	54	49	51	54	49	51	54	48	<1	<1		20	18		West	West	West

**TABLE 2-1  
 AMBIENT DATA FOR OLD RIVER  
 JANUARY 2000 - DECEMBER 2001 - NPDES MONITORING PERFORMED BY THE CITY**

	EC		pH		DO			Temperature (Degrees F)						Ammonia (mg/l)			Turbidity (NTU)		
	R1	R2	R1		R1	R2	R3	R1		R2		R3		R1	R2	R1	R2	R1	R2
	Avg	Avg	Avg	Max	Min	Min	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Avg	Avg	Avg	Avg
Mean	635	638	7.79	8.09	7.5	7.6	7.4	63.5	66.9	60.1	63.5	66.8	60.2	0.3	0.3	0.3	0.3	17.4	16.8
Median	635	683	7.72	7.99	7.6	8	7.8	65	68	59	66	69	61	0.2	0.2	0.2	0.2	16	16
Max	869	879	8.36	8.9	9.3	9.5	9.6	77	81	75	76	81	74	1.2	0.7	1.2	0.7	41	39
Min	289	292	7.26	7.6	4.6	4.6	4	48	49	47	48	50	47	0	0.1	0	0.1	9	9
N	24	24	24	24	24	24	24	24	24	24	24	24	24	10	12	10	12	24	24

R1 = 500 feet upstream from the point of discharge  
 R2 = 500 feet downstream  
 R3 = 5 miles downstream

Note: Averages for NH3 ignore less than values

## 2.0 COMMENTS AND RESPONSES

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### (b) *Data From The City of Santa Rosa*

As discussed above, although the effluent data collected by the City pursuant to its NPDES permit is useful for the purpose of establishing existing conditions, the data does not reflect the proposed project's upgrade from secondary to tertiary treatment, and, consequently, had limited utility for modeling purposes. Consequently, to predict conditions under the proposed project, the City relied upon data from the City of Santa Rosa's wastewater treatment plant, which is similar to the proposed project in volume, the surrounding land uses that affect the characteristics of the source water, and in project design.

#### *Volume Comparison*

The City of Santa Rosa's treatment plant currently discharges approximately 17 mgd, ADWF, which slightly more than is planned under the proposed project.

#### *Comparison of Surrounding Land Uses That Affect the Characteristics of the Source Water*

The City's source water is of slightly better quality than that of the City of Santa Rosa. The City has a predominantly domestic wastewater composition, with approximately 11 percent of the influent consisting of industrial discharges. Leprino Cheese, a major food processor, is the City's only significant industrial discharger. Of its domestic contribution, over 60 percent is residential and the balance is commercial wastewater. The City has no major "Categorical" discharger, as defined by U.S. EPA regulations.<sup>2</sup> Although the percentage of industrial discharge in the City of Santa Rosa's source water is similar (10 percent) to the City's (11 percent), the City of Santa Rosa has several "Categorical" dischargers that cause the City of Santa Rosa's source water to contain slightly higher concentrations of pollutants than the City's.<sup>3</sup> The balance of the City of Santa Rosa's source water is domestic, with about 70 percent residential and the balance commercial wastewater. Each City's Local Pretreatment Limits Program regulates the industrial and commercial discharges. The City's source water is also likely to have lower concentrations of metals than the City of Santa Rosa's because the City of Santa Rosa relies entirely upon surface water, which, in contrast to ground water, has a tendency to leach metals from indoor plumbing. In contrast, the City's source water for the proposed project is likely to retain some groundwater. Because the City's source water is of slightly better quality than that of the City Santa Rosa, particularly with respect to metals, analyses of the proposed project's impacts that are based on the City of Santa Rosa's data can effectively be used to predict the impacts of the proposed project and will be conservative (*i.e.*, will over-estimate impacts of the proposed project).

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<sup>2</sup> USEPA defines "Categorical Dischargers" according to Standard Industrial Codes (SICs). Historically, Categorical Dischargers discharge higher concentrations of metals and other constituents of concern.

<sup>3</sup> 3 percent of the City of Santa Rosa's source water consists of discharge from "Categorical Dischargers" as defined by USEPA.

*Treatment Process Comparison*

The proposed project and the City of Santa Rosa's wastewater treatment plant incorporate identical treatment processes, with the exception of their disinfection processes. Table 2-2 summarizes the treatment processes for the proposed project and the City of Santa Rosa's wastewater treatment system.

**TABLE 2-2  
COMPARISON OF CITY OF TRACY MUNICIPAL WASTEWATER TREATMENT SYSTEM WITH  
CITY OF SANTA ROSA MUNICIPAL WASTEWATER TREATMENT SYSTEM**

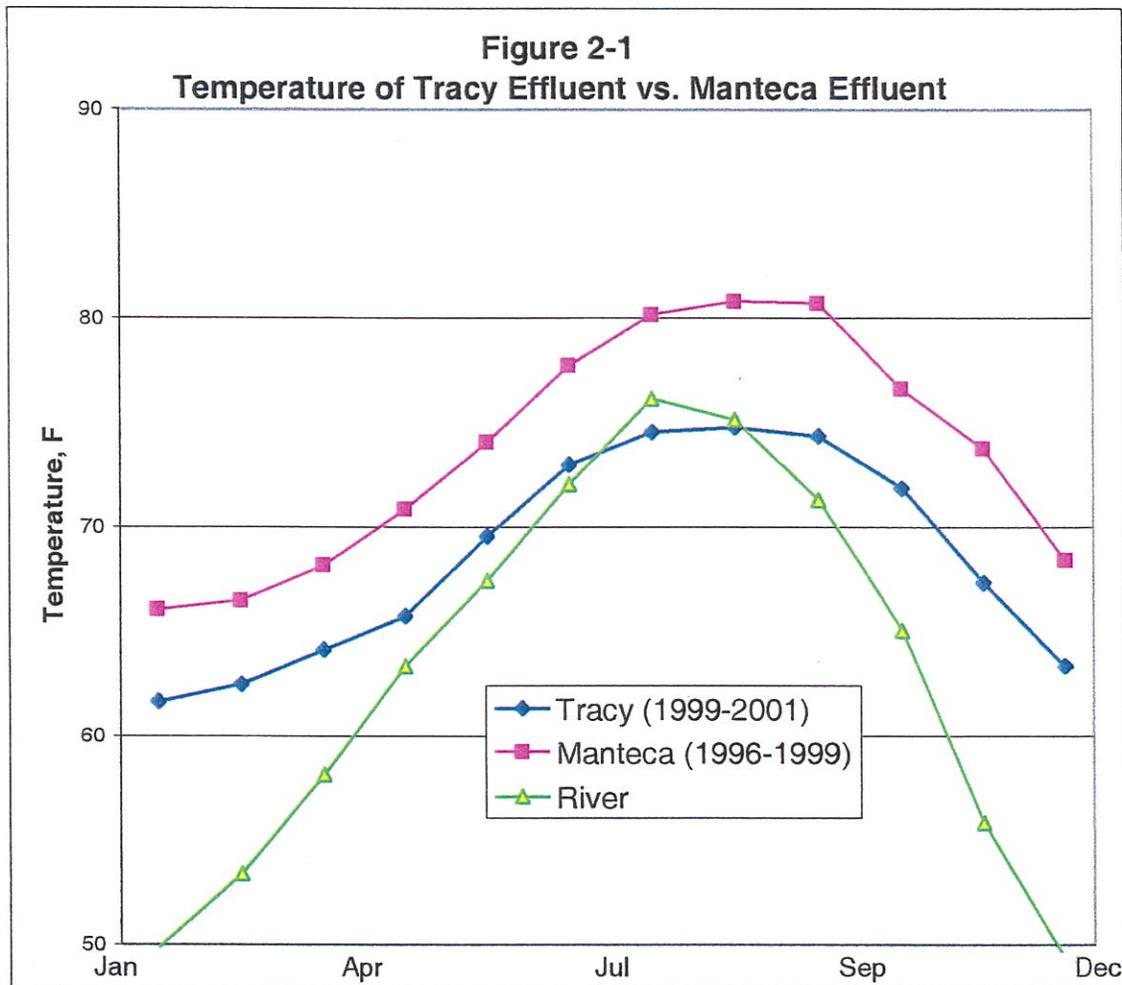
Unit Process	City of Tracy		City of Santa Rosa	Comparison of Tracy Proposed and Santa Rosa
	Current Secondary	Proposed Tertiary	Existing Tertiary	
Preliminary Treatment	Screening	Screening	Screening	Same
	Grit Removal	Grit Removal	Grit Removal	Same
Primary Treatment	Primary Sedimentation	Primary Sed.	Primary Sed.	Same
Secondary Treatment	Secondary Biofilters w/ Solids Contact	Secondary Activated Sludge (A/S)	Secondary Activated Sludge	Same
Nutrient Removal	No Nitrification	A/S Nitrification	A/S Nitrification	Same
	No Denitrification	Anoxic Selectors	Anoxic Selectors	Same
Filtration	No Filtration	Media Filtration	Media Filtration	Same
Disinfection	Chlorine Disinfection to 23 MPN/100 ml Total Coliform	Chlorine Disinfection to 2.2 MPN/100 ml, Total Coliform	Ultra Violet Disinfection to 2.2 MPN/100 ml, Total Coliform	Same Std; Different Process
Post Treatment	None	None	None	Same

Because both systems discharge approximately the same volume of effluent, because the City of Tracy's source water is of slightly better quality than the City of Santa Rosa's and because the Cities use virtually the same treatment processes (other than chlorination), the proposed project's effluent quality is likely to be similar to that of the City of Santa Rosa with the exceptions of: (1) metals (for which the City expects lower concentrations); and (2) water quality parameters that relate to chlorination.

(c) *Data From The City Of Manteca*

The City relied upon data from the City of Manteca's wastewater treatment plant to analyze thermal impacts due, in part, to the strength of the data set (n = 1,200) and the technical judgment that the City's effluent would be similar, in temperature, to the City of Manteca's effluent (the current Tracy plant employs the same secondary treatment process as Manteca employs). The Draft EIR considered the temperature data from the Manteca facility as a worst-case scenario, because the effluent from the Manteca facility is several degrees warmer than the effluent from the City's facility. As a result, the incremental temperature impacts of the City's discharge would be less than predicted in the Draft EIR using the City of Manteca data. Figure 2-1 shows the temperature difference between the City and the City of Manteca effluent temperatures, with the temperature of

the City of Manteca's effluent being several degrees warmer than the City of Tracy's effluent every month.



(d) *Reliance Upon Median Numbers*

Commentors raised concerns regarding the use of median data, and the absence of the actual data sets upon which the Draft EIR relies. Data is provided in numerous tables in the Draft EIR and technical appendices with minimum, maximum, and percentile values, including medians. While some analyses use medians to provide context for typical impacts, other analyses use minimum and maximum values. Extreme values were reported and/or analyzed to evaluate potential acute impacts. For instance, the Draft EIR uses maximum and minimum ammonia and pH values to predict the risk of acute ammonia toxicity. [Draft EIR at page 4.6-40]. However, it is not appropriate to report or analyze extreme values to evaluate potential chronic impacts. Aquatic and human health-based chronic standards focus on long-term exposures. Extreme values are, by definition, unusual events over the long term, and therefore are of little relevance to the evaluation of chronic impacts.

(e) *The Influence Of The Tidal Barriers*

Some commentors raised concerns regarding whether the Draft EIR's analysis of the tidal barriers adequately considered the wide range of potential temporary and permanent barrier configurations that may affect the nature of the proposed project's impacts. Modeling performed for, and included in, the Draft EIR examines a full and complete range of barrier configurations, including no barriers, Old River barrier only, temporary barriers, and permanent barriers. [Draft EIR at pages 4.6-32 to 4.6-33 (describing the five Delta configurations that were considered)]. The scenarios were developed in cooperation with the Department of Water Resources through a series of meetings with the City's water quality consultants and senior Department of Water Resources staff involved in the South Delta Improvements Program. Appendix E of the Draft EIR provides a detailed description of each scenario. [Draft EIR, Appendix E at pages 53 to 55]. This description provides the purpose, location, and timing of each barrier configuration.

(f) *The Modeling Technique*

(i) *2001 RMA Modeling vs. 1980 Modeling*

Some commentors expressed concern as to whether the Draft EIR adequately considered the modeling effort conducted in 1980 by the South Delta Water Agency and the United States Bureau of Reclamation (the "1980 Modeling").

The City did not rely upon the results of the 1980 Modeling because that modeling is demonstrably less accurate than the RMA 2001 modeling. As explained below, in comparison to the 1980 Modeling, the City concluded that the RMA 2001 modeling could: (1) consider the influence of events occurring outside of the South Delta; (2) consider the impact of flows in the South Delta; (3) process larger quantities of information more quickly, allowing the City to consider more conditions; and (4) more accurately predict the barrier configuration and designs that are likely to affect the proposed project's impacts. Consequently, the Draft EIR relies upon the 2001 RMA modeling effort.

Unlike the RMA modeling, the 1980 Modeling did not take into account influences outside of the South Delta. In comparison, the 2001 work benefited from the breadth of the current RMA 2001 modeling, which goes well beyond the South Delta study area to include Benicia, the Sacramento River at Sacramento, and the San Joaquin River at Vernalis. As result of this breadth, the RMA 2001 modeling took into account regional processes and conditions that were not considered by the 1980 Modeling. In addition, the 1980 Modeling was calibrated only to water surface elevation (stage) in the South Delta. The 2001 RMA model was calibrated to both stage and flow in the South Delta, providing greater confidence in model predictions for stage, flow and water quality.

The processing time for the 1980 Modeling was three orders of magnitude (1000 times) slower than the current RMA models, due to the increased sophistication of computers. Therefore, the modeling performed in 1980 was limited to a handful of selected conditions due to computer processing time restrictions. In contrast, the 2001 modeling effort had the advantage of processing speeds that allowed consideration of a significantly greater array of modeling scenarios. The 2001 modeling

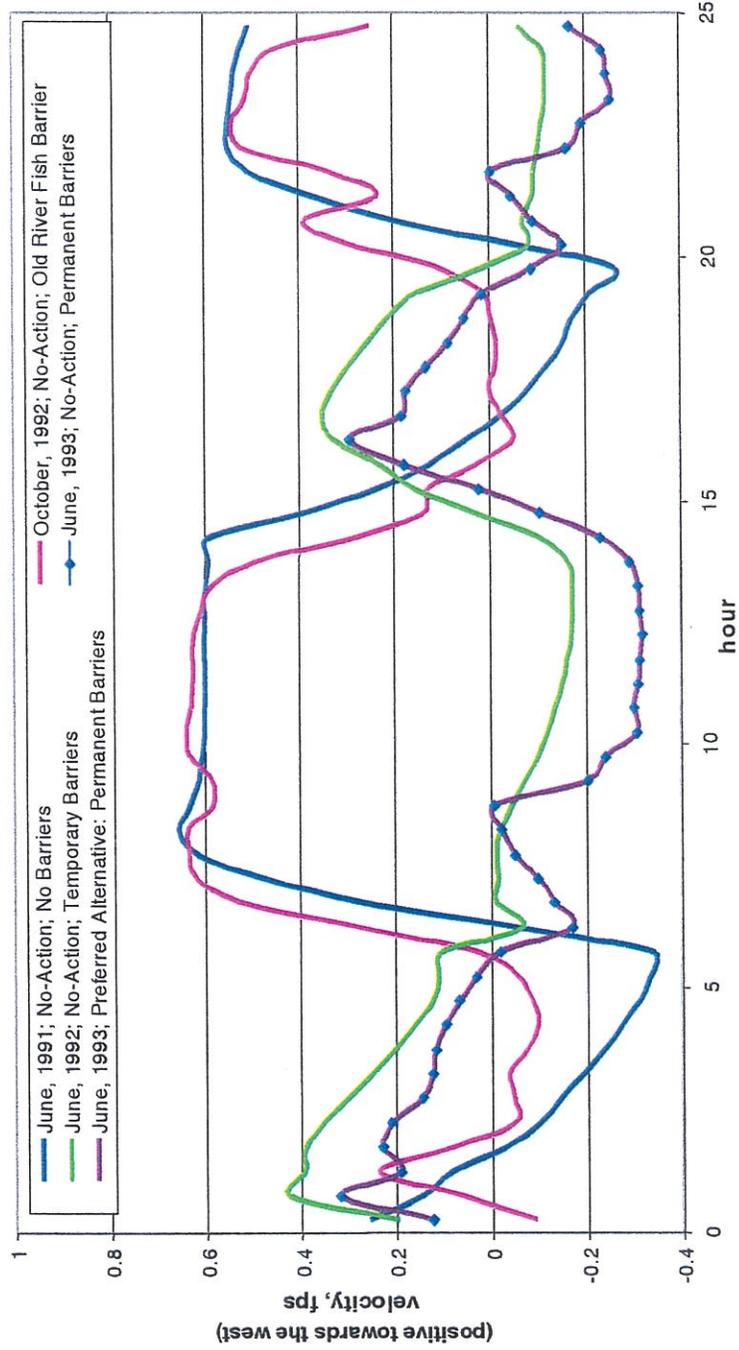
## 2.0 COMMENTS AND RESPONSES

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looked at two different Delta configurations and three different barrier operational schemes over a 70-year plus climatological period of record. The 2001 modeling effort directly calculated critical water quality conditions for the scenarios examined from these 70-year data distributions. In contrast, the 1980 effort relied on assumptions regarding worst-case conditions. These factors, particularly in combination, indicate that the 2001 work was significantly more robust and complete in its assessment of possible South Delta conditions than the 1980 effort. **Figure 2-2** demonstrates the range of scenarios analyzed by the 2001 RMA modeling. Specifically, **Figure 2-2** summarizes the intratidal velocity corresponding to the minimum monthly mean velocity in Old River at the City's existing outfall for five alternative scenarios.

FIGURE 2-2

Computed intratidal velocity corresponding to the minimum monthly mean velocity in Old River at the existing City of Tracy Outfall for the five flow / operation conditions



Finally, the 1980 Modeling's assumptions regarding barrier configurations and design are no longer accurate. The 1980 Modeling did not consider (1) proposed CALFED alternatives and Delta configurations, (2) the currently proposed design and operation of the South Delta barriers, (3) the effects of New Melones Dam operations and (4) the City's discharge volume. The 2001 modeling effort reflects each of these factors.

(ii) *CORMIX*

The City relied upon the CORMIX plume model for modeling near field impacts. Consultant Team compared the CORMIX plume model to more recent USEPA plume models and discovered that CORMIX provides slightly more environmentally protective results. Consultant Team performed plume modeling on the Tracy discharge using both the EPA's new Visual Plumes (VP) mixing zone model and the CORMIX model (CH2MHill, 2001). Consultant Team used the updated 3-dimensional MERGE model (UM3) for the VP analysis. Consultant Team then used DKHW, the VP version of UDKHDEN, to confirm the results. Although all models predicted comparable levels of dilution, the CORMIX model predicted a slightly larger mixing zone. The mixing zone is the area in which there is more effluent than background water and, as a result, greater impacts occur therein. Consequently, a model that imposes a larger mixing zone for an impact is more conservative, or environmental protective, than a model that imposes a smaller mixing zone for the same impact. Accordingly, by predicting a slightly larger mixing zone, the CORMIX model produces slightly more environmentally protective results than do the other models.

(iii) *The Worst-Case Scenario*

Some commentors expressed concern regarding the accuracy of the worst-case scenarios analyzed in the Draft EIR. The Draft EIR includes a "reasonable worst case" analysis. [See *Napa Citizens for Honest Government v. Napa County Board of Supervisors*, 91 Cal. App. 4th 342, 373 (2001) (stating that an EIR is not required to engage in speculation in order to analyze a "worst case scenario")]. A reasonable worst-case analysis looks at critical conditions that are reasonably foreseeable to occur, albeit at infrequent intervals. However, a "reasonable worst case" analysis does not assume maximum values for all parameters unless there is evidence that those maximum values are likely to coincide. This is because extreme events are unlikely to coincide unless there is evidence that the variables are dependent upon one another. Examination of the data in question indicates that there is no such dependency that would necessitate the use of multiple worst case data points.

(2) *The Significance Thresholds*

Commentors expressed concern regarding the criteria that the Draft EIR relied upon to determine whether a particular water quality impact is significant. Some commentors suggested that the City relied upon an incorrect regulatory standard as the significance threshold, or that any increase in mass loadings should automatically constitute a significant impact. The following discussion explains the criteria by which the City evaluated an impact's potential significance.

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- (a) *The City's Significance Thresholds Are More Stringent Than The Water Quality Standards Likely To Be Incorporated Into The Proposed Project's Permits*<sup>4</sup>

After extensive review of the applicable literature, including state and federal regulatory standards, in consultation with a team of water quality and biological experts, and after considering comments received in the response to the Notice of Preparation, the City selected water quality thresholds of significance that are more stringent than the water quality standards applicable to the NPDES permit required for operation of the proposed project. For example, the City could have relied solely on the terms of the Water Quality Control Plan for the Central Valley Region (Basin Plan), the California Toxics Rule (CTR), and the State Implementation Plan (SIP), as interpreted by the City and its counsel. However, to evaluate whether the City's expanded discharge could significantly impact the receiving waters, the City chose to go one step further and, for example, compare the projected concentrations in its effluent to maximum contaminant levels (MCLs) that apply to *drinking water end-of-tap*. [40 C.F.R. § 143.2 (defining MCLs to be the maximum permissible level of a contaminant in water that is delivered to the "free flowing outlet of the ultimate user of the public water system")]. In this way, for purposes of this FEIR only, the City assumed the most protective standards possible, even where it is unlikely that those standards will be incorporated into the proposed project's NPDES permit.

- (b) *Mass Loading Is Not A Relevant Significance Threshold*<sup>5</sup>

Several commentors stated that any increase in the *mass loading* of constituents within the receiving waters is a significant impact, even if there is no increase in the *concentration* of the constituent in the receiving waters. For purposes of the Final EIR, the term "mass load" refers to the total quantity, of a particular constituent.

Although the proposed project may slightly increase the receiving waters' mass loading of the constituents set forth in Table 2-14, the City determined that such an increase is not sufficient to support a conclusion of significance for purposes of CEQA. The City based this decision on three factors. First, the water quality criteria and objectives adopted by the USEPA and the Regional Board for the identified trace metals and trace organics are based on concentrations, not on mass. Second, as discussed below, contrary to the position of some commentors, the state and federal antidegradation policies do not support the position that an increase in mass loading, without an increase in concentration, is a significant impact. Third, commentors provided no scientific support for the conclusion that an increase in mass, without any increase in concentration, constitutes a significant adverse impact.

However, the City did analyze mass loading for the following two purposes.

- (1) The City used decreased mass loadings to demonstrate that the proposed project will not have any adverse impact upon receiving waters with regards to a particular constituent.

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<sup>4</sup> The following comments raised concerns regarding the significance thresholds: 1-7, 14-1, 14-2, 14-3, 15-10, and 15-11.

<sup>5</sup> The following comments address mass loading: 1-9, 6-2, 14-4, 15-2, 15-8, and 15-9.

- (2) The City concluded that a slight increase in mass loading of a particular constituent may be an indicator that the proposed project contributes to a *cumulatively significant impact*. Consequently, as discussed in Master Response Section B, the City did consider increases in mass loading in the cumulative impacts analysis.

(c) *The State and Federal Antidegradation Policies Are Inapplicable as Significance Thresholds*<sup>6</sup>

Commentors stated that, because of the federal and state antidegradation policies (40 C.F.R. §131.12 and State Board Res. No. 68-16 [Oct. 28, 1968], respectively), any increase in mass loading of a constituent that is included on the State's 303(d) List for the receiving waters at issue constitutes a significant impact for purposes of CEQA.<sup>7</sup> However, the federal and state antidegradation policies do not constitute significance thresholds for purposes of satisfying CEQA, as neither policy applies to constituents and/or water bodies on the State's 303(d) List.<sup>8</sup> The following discussion summarizes the bases for the conclusion that neither antidegradation policy applies to constituents and/or water bodies on the State's 303(d) List.

The federal antidegradation policy directs the State to develop and adopt a statewide antidegradation policy, consistent with principles discussed at 40 C.F.R. §131.12(a)(1)-(4). [40 CFR §131.12(a)]. These principles divide water bodies into two categories. The first category applies to all water bodies and suggests that in order to prevent degradation of receiving waters, discharges must comply with water quality criteria or objectives adopted to protect beneficial uses. [40 C.F.R. §131.12(a)(1)]. The second category applies to water bodies where the quality of the receiving waters *exceed* levels necessary to support aquatic and recreational uses (*i.e.*, non-303(d) listed water bodies). [40 C.F.R. §131.12(a)(2)]. In that case, the federal antidegradation policy supports maintaining and protecting that higher level of water quality, *unless the State determines that lowering the water quality is necessary to accommodate important economic or social developments*. However, such a lowering cannot result in water quality that does not protect existing beneficial uses.

<sup>6</sup> The following comments address the applicability of the antidegradation policy: 1-9, 17-14, and 15-9.

<sup>7</sup> The Clean Water Act requires that each State identify waters within its boundaries for which effluent limitations required by the technology-based standards set forth in CWA section 301(b)(1)(A) and (b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. See 33 U.S.C. § 1313(d)(1)(A). The identified water bodies are referred to in federal regulations as "water quality limited segments." See 40 C.F.R. § 130.2(j). The State's identification of the water quality limited segments and the impairing pollutant(s) is referred to as the State's "303(d) List." For waters identified in the State's 303(d) List, the State must establish the "total maximum daily load" ("TMDL") for the impairing pollutants. See 33 U.S.C. § 1313(d)(1)(C).

<sup>8</sup> The Delta Waterways are included on the State's 303(d) List for the following: Chloropyrifos (source identified as agriculture), DDT (source identified as agriculture), Diazinon (source identified as agriculture), Electrical Conductivity (source identified as agriculture), Group A pesticides (source identified as agriculture), mercury (source identified as resource extraction, *i.e.* abandoned mines), low dissolved oxygen (source identified as municipal point sources, urban runoff, and storm sewers), and unknown toxicity (source identified as unknown).

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California's antidegradation policy requires the maintenance of water quality where "the existing quality of the water is *better* than the quality established in policies as of the date on which such policies become effective..."<sup>9</sup> State Board Res. No. 68-16 (emphasis added)]. Accordingly, if the water body into which the discharge of a constituent is to occur has been deemed "impaired" (e.g., via a 303(d) listing) for that constituent, the State's antidegradation policy does not apply.

Even for high quality waters, the State's antidegradation policy allows water quality to be lower than existing background water quality so long as the change is "consistent with the maximum benefit to the people of the State." [*Id.*] Additionally, state law explicitly recognizes "that it may be possible for the quality of the water to be changed to some degree without unreasonably affecting beneficial uses." [Water Code § 13241]. Therefore, the State's antidegradation policy does not necessarily mandate more stringent regulation.

In sum, neither the federal nor State antidegradation policies require more stringent regulation than the applicable water quality control plans for discharges into impaired water bodies. Rather, both policies apply where water quality exceeds the applicable standard. In that case, the federal and State antidegradation policies mandate that water quality objectives protective of the existing beneficial uses be met to maintain and protect the receiving waters, subject to modification if consistent with the maximum benefit to the people of the State.

In this case, the City's evaluation of impacts associated with the expansion of its existing treatment facility meets, and even exceeds, the federal and State antidegradation policies. First, the City's upgrade from secondary to tertiary treatment facilities will beneficially affect the low dissolved oxygen impairment identified for Delta Waterways. Second, as discussed above in Master Response Section A(2)(a), in some cases, the City compared the quality of the proposed expanded and upgraded discharge to criteria *more stringent* than the applicable water quality objectives that are deemed protective of existing beneficial uses for the purposes of determining the impact. As such, the City has amply complied with the federal and State antidegradation policies.

### (3) *The Adequacy of the Draft EIR's Assessment of the Project's Impacts On Water Quality*

The City undertook a two-part process to determine whether any impact of the proposed project to existing water quality is significant for purposes of CEQA. First, the City relied upon a comparison of the existing effluent to the proposed project's effluent (see **Table 2-3**). Second, the City compared the proposed project's incremental impact upon the baseline conditions to the applicable significance threshold. As described above, the City used conservative significance thresholds for CEQA purposes that are likely more protective than the criteria that will apply to the City's NPDES permit for the proposed project. **Table 2-4** summarizes the City's findings as to how the proposed project's incremental impact upon the environmental baseline conditions compare to the significance threshold.

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<sup>9</sup> The State Board has interpreted "high quality" waters to be measured constituent by constituent. Accordingly, support exists for a water body being considered "high quality" for one constituent and not "high quality" for another. See Petition of Environmental Health Coalition, State Board Order No. WQ 91-10, p. 12.

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TABLE 2-3  
COMPARISON OF EXISTING EFFLUENT TO PROPOSED PROJECT'S EFFLUENT

Constituent	Effluent (Current)	Effluent (Proposed Project at Buildout)	Difference Between Current and Proposed Project's Effluent <sup>10</sup>
Total Dissolved Solids	1,000 mg/l Average 1,200 mg/l Maximum [Draft EIR at 4.6-37]	562 mg/l Average ADWF + 20% Maximum <sup>11</sup>	(438 mg/l Average)
Electrical Conductivity	1,750 umhos/cm Average	983 umhos/cm Average ADWF +20% Maximum <sup>12</sup>	(768 umhos/cm Average)
Total Organic Carbon	15 mg/l Average 18 mg/l Maximum	7.5 mg/l Average 10.0 mg/l Maximum	(7.5 mg/l Average) (8.0 mg/l Maximum)
Fecal Coliform	<23 MPN/100 ml Average 240 MPN/100 ml Maximum [Draft EIR 4.6-37]	<2.2 MPN/100 ml Average <23 MPN/100 ml Maximum [Draft EIR at 4.6-37]	(20.8 MPN/100 ml Average) (217 MPN/100 ml Maximum)
Total Coliform	23 MPN/100 ml Average 1,600 MPN/100 ml Maximum [Draft EIR at 4.6-37]	2.2 MPN/100 ml Average 23 MPN/100 ml Maximum [Draft EIR at 3-20, 4.6-37]	(20.8 MPN/100 ml Average) (1577 MPN/100 ml Maximum)
pH	7.0 Average 7.5 Maximum [Draft EIR 3-20]	7.0 Average 7.5 maximum [Draft EIR 3-20, 4.6-37]	No change
Ammonia	15 mg/l Average 30 mg/l Maximum [Draft EIR 4.6-37]	0.5 mg/l Average 3.0 mg/l Maximum [Draft EIR at 4.6-37]	(14.5 mg/l Average) (27 mg/l Maximum)
Nitrate	5 mg/l Average	10.0 mg/l Average	5 mg/l Average

<sup>10</sup> Parentheticals indicate a decrease in the constituent concentration.

<sup>11</sup> The City is predicting a conservative increase of 20 percent for the maximum concentration given the variability in concentration.

<sup>12</sup> The City is predicting a conservative increase of 20 percent for the maximum concentration given the variability in concentration.

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TABLE 2-3  
COMPARISON OF EXISTING EFFLUENT TO PROPOSED PROJECT'S EFFLUENT (CONTINUED)

Constituent	Effluent (Current)	Effluent (Proposed Project at Buildout)	Difference Between Current and Proposed Project's Effluent <sup>13</sup>
Total Inorganic Nitrogen	20 mg/l Average	10.5 mg/l Average	(9.5 mg/l Average)
Copper	6 ug/l Average 10 ug/l Maximum [Draft EIR 4.6-37]	5 ug/l Average 10 ug/l Maximum [Draft EIR 4.6-37]	(1 ug/l Average) No change in maximum
Arsenic	3 ug/l Average 4 ug/l Maximum [Draft EIR 4.6-37]	2.0 ug/l Average 4.0 ug/l Maximum [Draft EIR 4.6-37]	(1.0 ug/l Average) No change maximum
Cadmium	0.05 ug/l Average 0.1 ug/l Maximum [Draft EIR 4.6-37]	0.05 ug/l Average 0.1 ug/l Maximum [Draft EIR 4.6-37]	No change
Chromium VI	1.7 ug/l Average 2.4 ug/l Maximum [Draft EIR 4.6-37]	0.5 ug/l Average 1.0 ug/l Maximum [Draft EIR 4.6-37]	(1.2 ug/l Average) (1.4 ug/l Maximum)
Lead	5 ug/l Average 19 ug/l Maximum [Draft EIR 4.6-37]	0.5 ug/l Average 1.0 ug/l Maximum [Draft EIR 4.6-37]	(4.5 ug/l Average) (18 ug/l Maximum)
Mercury	0.015 ug/l Average 0.02 ug/l Maximum [Draft EIR 4.6-37]	0.01 ug/l Average 0.015 ug/l Maximum [Draft EIR 4.6-37]	(.005 ug/l Average) (.005 ug/l Maximum)
Nickel	2.5 ug/l Average 5 ug/l Maximum [Draft EIR 4.6-37]	2.5 ug/l Average 5 ug/l Maximum [Draft EIR 4.6-37]	No change
Selenium	0.8 ug/l Average 1.0 ug/l Maximum [Draft EIR 4.6-37]	0.5 ug/l Average 1.0 ug/l Maximum [Draft EIR 4.6-37]	(0.3 ug/l Average) No change maximum
Silver	0.6 ug/l Average 1.0 ug/l Maximum [Draft EIR 4.6-37]	0.2 ug/l Average 0.5 ug/l Maximum [Draft EIR 4.6-37]	(.4 ug/l Average) (.5 ug/l Maximum)

<sup>13</sup> Parentheticals indicate a decrease in the constituent concentration.

TABLE 2-3  
COMPARISON OF EXISTING EFFLUENT TO PROPOSED PROJECT'S EFFLUENT (CONTINUED)

Constituent	Effluent (Current)	Effluent (proposed project at Buildout)	Difference Between Current and proposed project's Effluent <sup>14</sup>
Zinc	30 ug/l Average 84 ug/l Maximum [Draft EIR 4.6-37]	30 ug/l Average 50 ug/l Maximum [Draft EIR 4.6-37]	No change average (34 ug/l Maximum)
Chloroform	6 ug/l Average 17 ug/l Maximum [Draft EIR 4.6-37]	5 ug/l Average 15 ug/l Maximum [Draft EIR 4.6-37]	(1 ug/l Average) (2 ug/l Maximum)
Bromodichloromethane = Dichlorobromomethane	1 ug/l Average 1.6 ug/l Maximum [Draft EIR 4.6-37]	1 ug/l Average 1.5 ug/l Maximum [Draft EIR 4.6-37]	No change average (0.1 ug/l Maximum)
Dichloromethane	1 ug/l Average 5 ug/l Maximum [Draft EIR 4.6-37]	2 ug/l Average 5 ug/l Maximum [Draft EIR 4.6-37]	No change
Bromoform	0.2 ug/l Average 0.3 ug/l Maximum [Draft EIR 4.6-37]	0.2 ug/l Average 0.3 ug/l Maximum [Draft EIR 4.6-37]	No change
Chlorodibromomethane= Dibromochloromethane	0.2 ug/l Average 0.3 ug/l Maximum [Draft EIR 4.6-37]	0.2 ug/l Average 0.3 ug/l Maximum [Draft EIR 4.6-37]	No change
1,4-dichlorobenzene	0.2 ug/l Average 0.3 ug/l Maximum [Draft EIR 4.6-37]	0.2 ug/l Average 0.3 ug/l Maximum [Draft EIR 4.6-37]	No change
Toluene	2 ug/l Average 5 ug/l Maximum [Draft EIR 4.6-37]	<1 ug/l Average <2 ug/l Maximum [Draft EIR 4.6-37]	(> 1 Average) (>3 Maximum)
Tetrachloroethylene	0.2 ug/l Average	0.2 Average	No change
Trichloroethylene	0.2 ug/l Average [DEIR 4.6-3]	0.2 Average	No change
Bis (2-ethylhexyl) phthalate	11 ug/l Average 18 ug/l Maximum [Draft EIR 4.6-37]	<5 ug/l Average <10 ug/l Maximum [Draft EIR 4.6-37]	(>6 Average) (>13 Maximum)

Notes: References to where the data used in the analysis resides is listed in "[ ]".

<sup>14</sup> Parentheticals indicate a decrease in the constituent concentration.

2.0 COMMENTS AND RESPONSES

Table 2-4 indicates that none of the proposed project's impacts upon water quality parameters are significant.

TABLE 2-4  
COMPARISON OF PROPOSED PROJECT WATER QUALITY TO SIGNIFICANCE THRESHOLD

Constituent	Proposed Project	Location	Significance Threshold	Difference Between Proposed Project's Impacts and Significance Threshold
Total Dissolved Solids	562 mg/l (or no more than 75,000 lbs/day)	Effluent	75,000 lbs/day (existing permitted amount)	Less than significant
Electrical Conductivity	558 umhos/cm to 973 umhos/cm	Receiving waters	567 umhos/cm to 1008 umhos/cm (existing condition, receiving waters)	Less than significant
Total Organic Carbon	7.5 mg/l Average 10.0 mg/l Maximum	Effluent	Baseline effluent discharge of 15 mg/l Average	Less than significant
Fecal Coliform	<2.2 MPN/100 ml Average <23 MPN/100 ml Maximum [Draft EIR at 4.6-37]	Effluent	200 MPN/100ml Basin Plan	Less than significant
pH	7.0 Average 7.5 maximum [Draft EIR 4.6-37]	Effluent	6.5-8.5 (Basin Plan)	Less than significant
Ammonia Acute Toxicity	3.0 mg/l Maximum (effluent pH at 8.0) [Draft EIR 4.6-37]	Effluent	5.6 mg/l (assuming pH is 8.0) (USEPA)	Less than significant
Ammonia Chronic Toxicity	0.5 mg/l Average (effluent pH of 8.0)	Old River within two feet of the Tracy diffuser	1.24 mg/l assuming pH of 8.0 (USEPA)	Less than significant [Draft EIR 4.6-40]
Nitrates	10 mg/l Average	Effluent (Undiluted)	10 mg/l (USEPA MCL)	Less than significant
Total Inorganic Nitrogen	10.5 mg/l Average 1,400 lbs/day, Average, ADWF	Effluent	<1,500 lbs/day Average ADWF	Less than significant

2.0 COMMENTS AND RESPONSES

TABLE 2-4  
COMPARISON OF PROPOSED PROJECT WATER QUALITY TO SIGNIFICANCE THRESHOLD (CONTINUED)

Constituent	Proposed Project	Location	Significance Threshold	Difference Between Proposed Project's Impacts and Significance Threshold
Arsenic Acute Toxicity	4.0 ug/l Maximum [Draft EIR 4.6-37]	Effluent	340 ug/l (CTR)	Less than significant
Arsenic Chronic Toxicity	2.0 ug/l Average [Draft EIR 4.6-37]	Effluent	150 ug/l (CTR)	Less than significant
Cadmium Acute Toxicity	0.1 ug/l Maximum [Draft EIR 4.6-37]	Effluent	12 ug/l based on hardness of 260 mg/l as CaCO3 (CTR)	Less than significant
Cadmium Chronic Toxicity	0.05 ug/l Average [Draft EIR 4.6-37]	Effluent	1.3 ug/l based on hardness of 50 mg/l as CaCO3 (CTR)	Less than significant
Copper Acute Toxicity	10 ug/l Maximum [Master Response A(1)(c)]	Effluent	33.1 ug/l (CTR) based on hardness of 260 mg/l as Ca CO3	Less than significant
Copper Chronic Toxicity	5 ug/l Average [Master Response A(1)(c)]	Effluent	5.0 ug/l (CTR) based on hardness of 50 mg/l as Ca CO3	Less than significant
Chromium VI Acute Toxicity	1.0 ug/l Maximum [Draft EIR 4.6-37]	Effluent	16 ug/l (CTR)	Less than significant
Chromium VI Chronic Toxicity	0.5 ug/l Average [Draft EIR 4.6-37]	Effluent	11 ug/l (CTR)	Less than significant

2.0 COMMENTS AND RESPONSES

TABLE 2-4  
COMPARISON OF PROPOSED PROJECT WATER QUALITY TO SIGNIFICANCE THRESHOLD (CONTINUED)

Constituent	Proposed Project	Location	Significance Threshold	Difference Between Proposed Project's Impacts and Significance Threshold
Lead Acute Toxicity	0.5 ug/l Average 1.0 ug/l Maximum [Draft EIR 4.6-37]	Effluent	based on hardness of 260 mg/l as CaCO3 (CTR) 180 ug/l	Less than significant [Draft EIR 4.6-42]
Lead Chronic Toxicity	0.5 ug/l Average 1.0 ug/l Maximum [Draft EIR 4.6-37]	Effluent	based on a hardness of 50 mg/l as CaCO3 (CTR) 1.17 ug/l	Less than significant [Draft EIR 4.6-42]
Mercury	0.01 ug/l Average	Effluent	.050 ug/l (CTR/Human Health)	Less than Significant
Selenium Chronic Toxicity	0.5 ug/l	Effluent	5.0 ug/l (CTR)	Less than significant
Nickel Acute Toxicity	2.5 ug/l Average 5 ug/l Maximum [Draft EIR 4.6-37]	Effluent	based on hardness of 260 mg/l as CaCO3 (CTR) 1,051 ug/l	Less than significant [Draft EIR 4.6-42]
Nickel Chronic Toxicity	2.5 ug/l Average 5 ug/l Maximum [Draft EIR 4.6-37]	Effluent	based on a hardness of 50 mg/l as CaCO3 (CTR) 28.9 ug/l	Less than significant [Draft EIR 4.6-42]
Silver Acute Toxicity	0.2 ug/l Average 0.5 ug/l Maximum [Draft EIR 4.6-37]	Effluent	based on hardness of 260 mg/l as CaCO3 (CTR) 17.8 ug/l	Less than significant [Draft EIR 4.6-42]
Zinc Acute Toxicity	30 ug/l Average 50 ug/l Maximum [Draft EIR 4.6-37]	Effluent	based on hardness of 260 mg/l as CaCO3 (CTR) 263 ug/l	Less than significant [Draft EIR 4.6-42]
Zinc Chronic Toxicity	30 ug/l Average 50 ug/l Maximum [Draft EIR 4.6-37]	Effluent	based on hardness of 50 mg/l as CaCO3 (CTR) 65 ug/l	Less than significant [Draft EIR 4.6-42]

2.0 COMMENTS AND RESPONSES

TABLE 2-4  
COMPARISON OF PROPOSED PROJECT WATER QUALITY TO SIGNIFICANCE THRESHOLD (CONTINUED)

Constituent	Proposed Project	Location	Significance Threshold	Difference Between Proposed Project's Impacts and Significance Threshold
Tetrachloroethylene	0.2 ug/l Average	Effluent	0.8 ug/l (CTR/Human Health (Water & Organisms))	Less than significant
Bromoform	0.2 ug/l Average	Effluent	4.3 ug/l (CTR/Human Health (Water & Organisms))	Less than significant
Bromodichloromethane = Dichlorobromomethane	.11 ug/l Average [Master Response A(3)(e)]	Old River	0.56 ug/l (CTR)	Less than significant
1,4-dichlorobenzene	0.2 ug/l Average	Effluent	400 ug/l (CTR/Human Health (Water & Organisms))	Less than significant
Chloroform	5 ug/l Average	Effluent	5.9 ug/l (USEPA 304[a] criteria)	Less than significant
Toluene	<1 ug/l Average	Effluent	6,800 ug/l (CTR/Human Health (Water & Organisms))	Less than significant
Trichloroethylene	0.2 ug/l Average	Effluent	2.7 ug/l (CTR/Human Health (Water & Organisms))	Less than significant
DiBromochloromethane= Chlorodibromomethane	.2 ug/l Average	Effluent	.41 ug/l (CTR/Human Health (Water & Organisms))	Less than significant
Bis (2-ethylhexyl)phthalate	<0.57 ug/l Average [Master Response A(3)(e)]	Old River	1.8 (CTR/Human Health (Water & Organisms))	Less than Significant

Notes: Regulatory standards used as significance thresholds is noted in "( )".  
References to where the data used in the analysis resides is listed in "[ ]".

Although Tables 2-3 and 2-4 provide a summary of the proposed project's impacts, the following is a narrative discussion of water quality impacts (1) that were of greatest concern to commentors; or (2) that involved an analysis that is not compatible with the tabular format used above.

(a) *The Proposed Project's Impacts Upon Total Dissolved Solids and Electrical Conductivity*<sup>15</sup>

Several commentors raised concerns regarding the proposed project's impacts upon TDS and EC.<sup>16</sup> While the City determined that the proposed project's impacts upon TDS and EC levels are less than significant, the City appreciates commentor's concerns regarding salinity in the Delta. Therefore, the City is committed to, among other actions described in the Master Responses, increase the amount of low TDS water into the City's water supply, as called for in City Urban Management Plan Policy PF.1.5. Improvement in the quality of the City's water supply will allow the City to implement the proposed project by decreasing TDS concentrations in the effluent waters, thus maintaining the TDS mass in the effluent at the current permitted average level of 75,000 lbs/day, based upon average dry weather flow conditions.<sup>17</sup>

Table 2-5 and Figures 2-3 through 2-7 summarize the reduction in the receiving waters' TDS concentrations that will occur at buildout of the proposed project in comparison to the currently permitted TDS discharge. Specifically, Table 2-5 and Figures 2-3 through 2-7 describe the TDS concentration that is likely to occur in the receiving waters under a number of different scenarios. As described in Master Response Section A.(1)(f) above, the City selected these scenarios in cooperation with the Department of Water Resources to reflect a range of barrier configurations.

<sup>15</sup> The following comments raised concerns regarding Total Dissolved Solids and Electrical Conductivity: 1-7, 1-8, 6-2, 13-1, 13-2, 14-1, 15-10, 16-15, 17-10, 17-7, 17-19, and 17-22.

<sup>16</sup> Effluent data from the existing wastewater treatment plant indicates that EC and TDS are linearly correlated: EC in micromhos per centimeter (umhos/cm) = TDS in mg/l x 1.75. Accordingly, a reduction in TDS levels will result in a reduction in EC levels. For this reason, the Draft EIR, the Master Responses, and the individual responses to comments discuss TDS as an indicator of EC levels.

<sup>17</sup> Mass calculation resulting in 75,000 lbs/day calculated based on average dry weather flow. In addition, the City will continue the use of chlorine gas and sulfur dioxide, rather than converting to sodium hypochlorite and sodium bisulfite, so as not to increase TDS concentration in the City's effluent.

**TABLE 2-5**  
**COMPARISON OF THE INCREMENTAL IMPACT OF THE PROPOSED PROJECT'S EFFLUENT**  
**(16 MGD AT 562 MG/L) TO THE CURRENTLY PERMITTED EFFLUENT'S (9 MGD AT 1,000 MG/L)**  
**IMPACT UPON RECEIVING WATERS**

Location	Incremental Impacts on TDS Concentrations				
	CALFED No Action Scenario mg/l	CALFED No Action Scenario with Old River Barrier mg/l	CALFED No Action Scenario with Temporary South Delta Facilities mg/l	CALFED No Action Scenario with Permanent South Delta Facilities mg/l	CALFED Preferred Alternative with Permanent South Delta Facilities mg/l
Old River near Middle River	0.0	(0.1)	(1.8)	(25.6)	(30.9)
Old River at Tracy Road Bridge	(7.1)	(11.3)	(9.1)	(11.8)	(11.8)
San Joaquin River at Brandt Bridge	0.0	0.0	0.0	(0.2)	(.05)
CCWD Diversion	(1.6)	(1.0)	(1.0)	(1.1)	(1.1)
SWP Diversion	(2.8)	(2.5)	(2.0)	(1.1)	(1.2)
CVP Diversion	(3.7)	(4.1)	(4.0)	(5.4)	(5.4)

Notes: This analysis is based on the following assumptions regarding TDS concentrations in the receiving waters with the currently permitted TDS (9 mgd at 1,000 mg/l):

Old River @ diffuser	365 mg/l
Old River near Middle River	556 mg/l
Old River at Tracy Road Bridge	556 mg/l
San Joaquin River at Brandt Bridge	556 mg/l
CCWD diversion	376 mg/l
State Water Project diversion	376 mg/l
CVP diversion	324 mg/l

FIGURE 2-3  
CALFED NO ACTION ALTERNATIVE

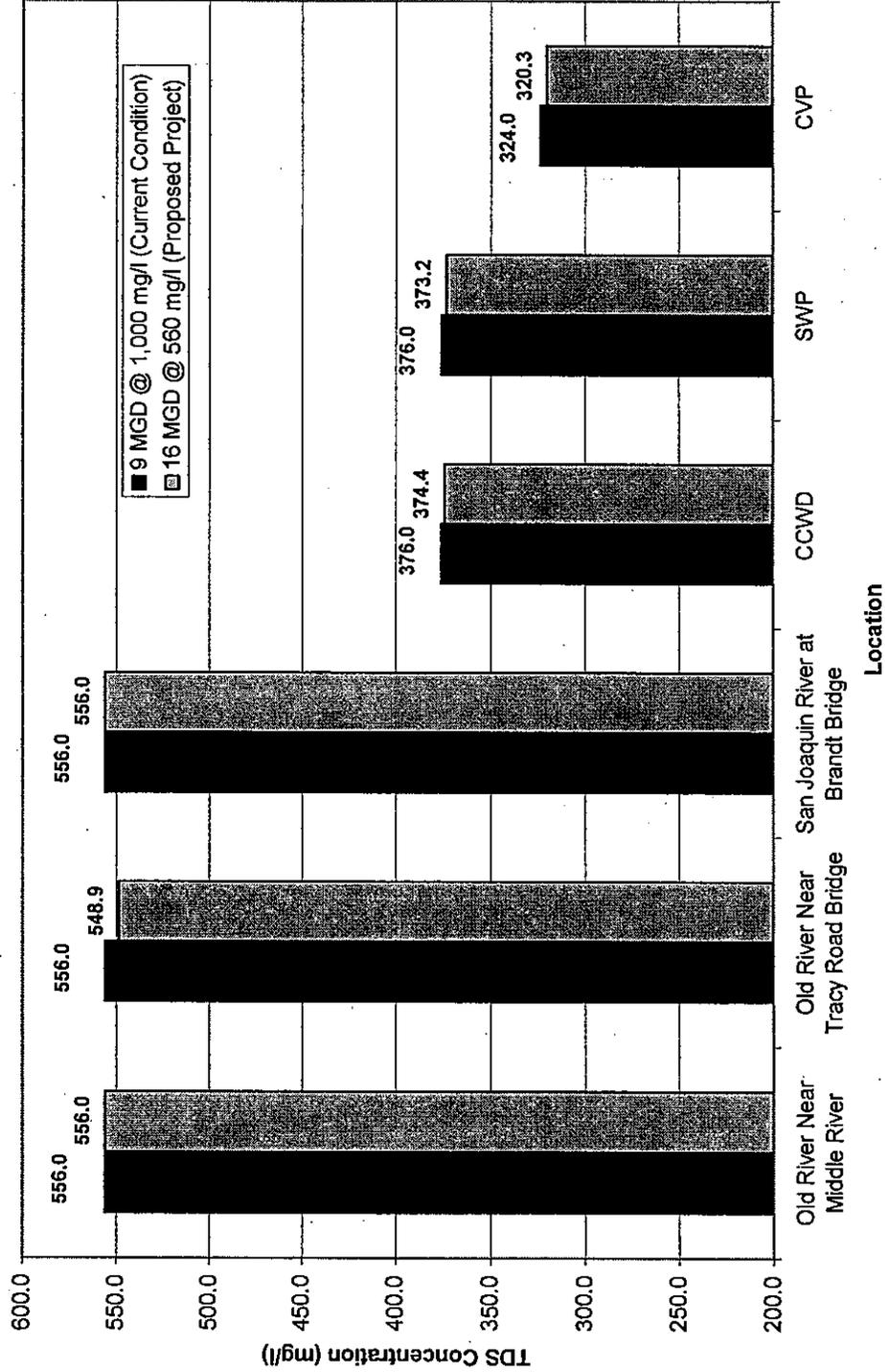
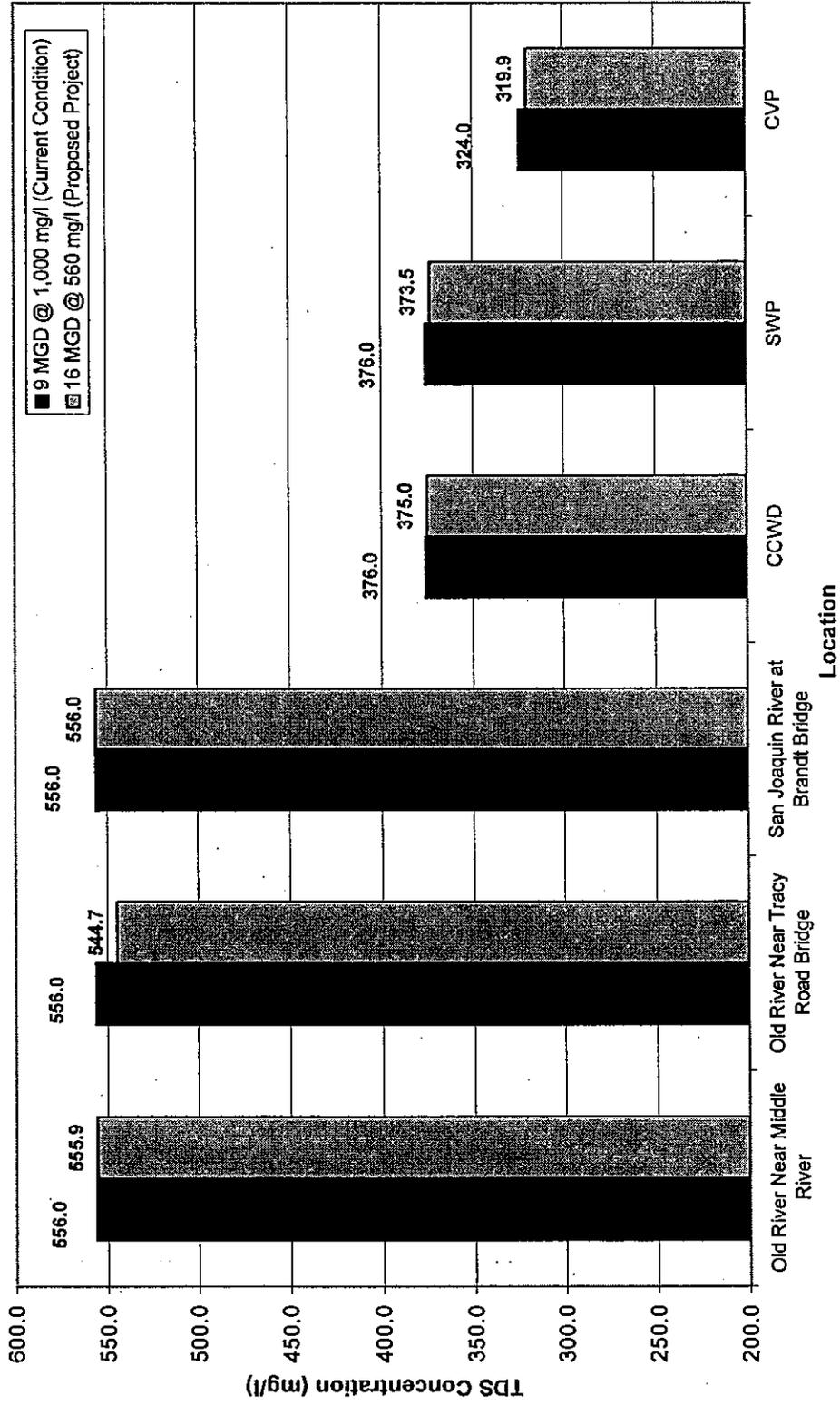
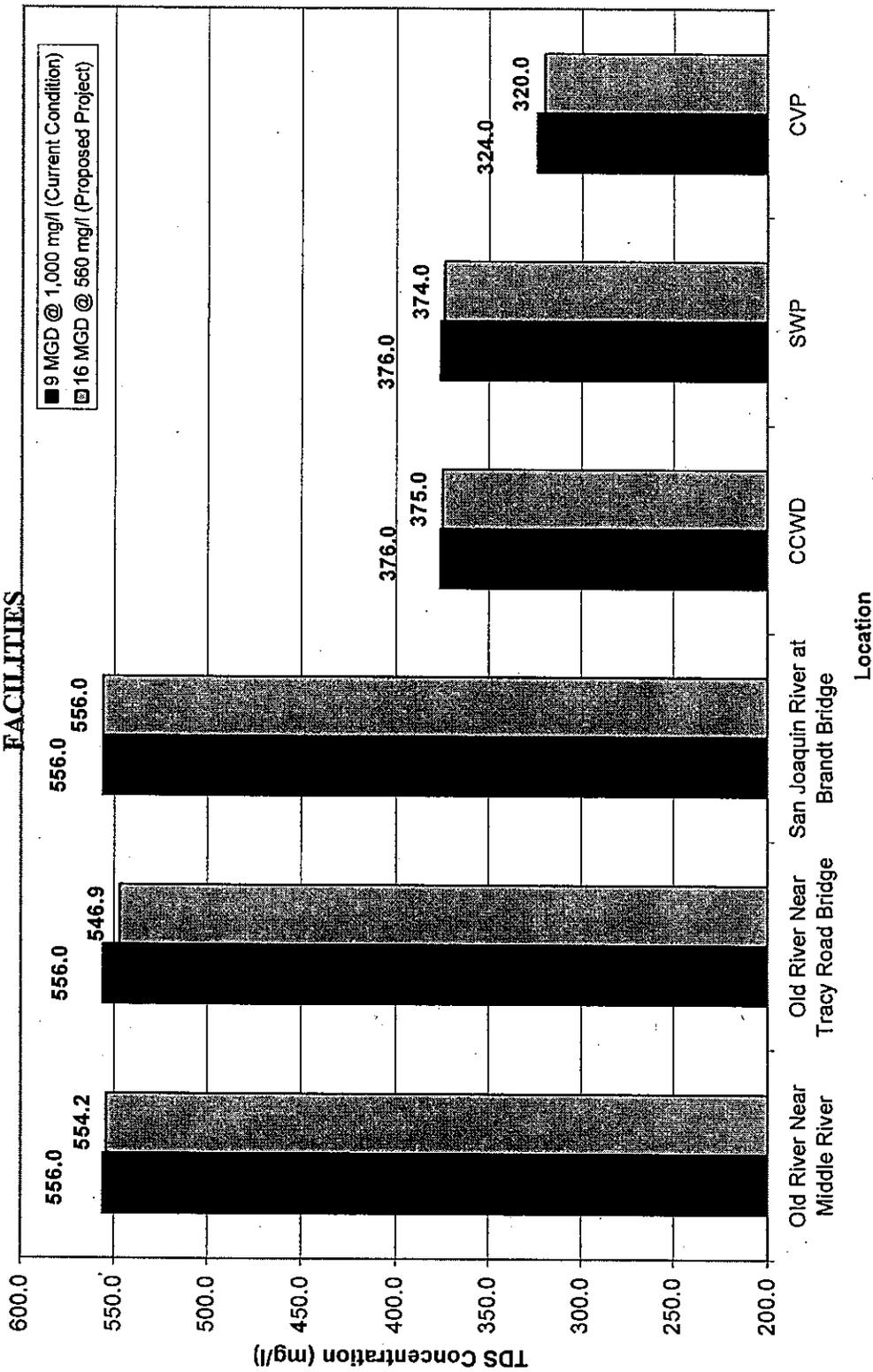


FIGURE 2-4  
CALFED NO ACTION ALTERNATIVE WITH OLD RIVER BARRIER



**FIGURE 2-5  
CALFED NO ACTION ALTERNATIVE WITH TEMPORARY SOUTH DELTA  
FACILITIES**



**FIGURE 2-6  
CALFED NO ACTION ALTERNATIVE WITH PERMANENT SOUTH DELTA FACILITIES**

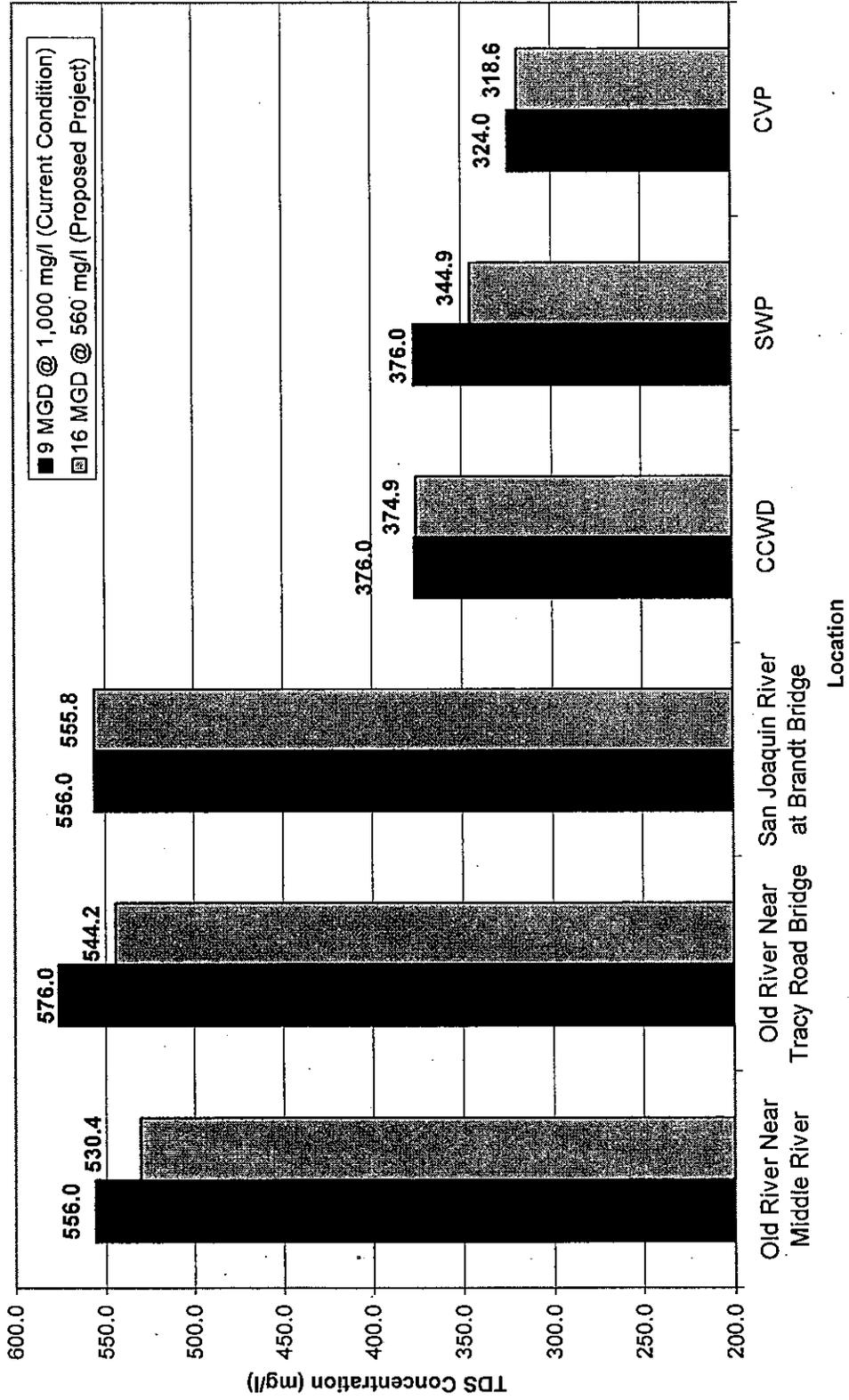
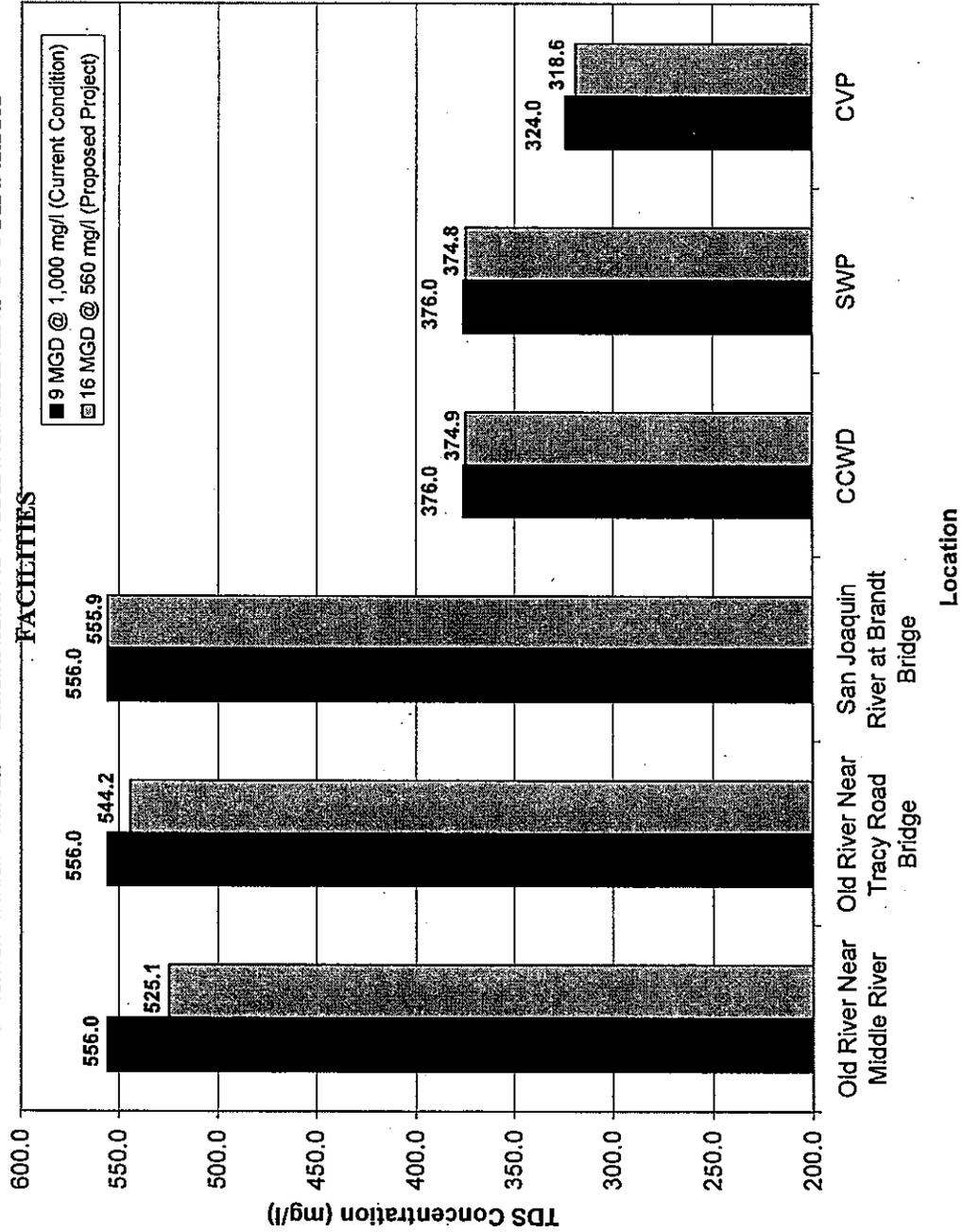


FIGURE 2-7  
CALFED PREFERRED ALTERNATIVE WITH PERMANENT SOUTH DELTA FACILITIES



## 2.0 COMMENTS AND RESPONSES

The City will achieve the proposed project's TDS level by means of the following additional mitigation measures:

**MM 4.6.2:** The City shall implement the following measures to improve the quality of the City's source water:

- (a) Transfer up to 10,000 AFY from South San Joaquin Irrigation District ("SSJID"). The average TDS concentration for SSJID water is projected to be approximately 90 mg/l.
- (b) Transfer up to 10,000 AFY of Central Valley Project Water from the West Side & Banta Carbona Irrigation District ("WSID/BCID"). The average TDS concentration for WSID/BCID water is less than 400 mg/l;
- (c) During critically dry years, the City believes it will receive at least 9,000 AFY because of seniority of SSJID rights and 5,000 AFY from the City's existing Central Valley Project ("CVP") water service contract. The City assumes it will not receive any water from the WSID/BCID transfer in such years. The City would make up any deficiencies in its low-TDS water supplies during such years by drawing from its Aquifer Storage and Recovery Program, which is expected to produce water with an average TDS of less than 400 mg/l.
- (d) Reasonably foreseeable decreases in domestic water softening in response to the shift towards a lower TDS water supply. These decreases will be achieved through: (1) a decrease in the installation of water softeners in response to the changes in source water; (2) the retirement of existing less efficient, water softeners as they wear out; (3) a decrease in the salt usage by water softeners that adjust salt usage based upon automatic monitoring of water hardness; and (4) the implementation of legislation that allows the City to prospectively ban water softeners after January 1, 2003. In addition, City can exercise additional source control measures on commercial and industrial customers to limit TDS contributions by adopting a technically based local limit for TDS.

As demonstrated in Table 2-6, the increased use of low TDS surface water, as well as the reasonably foreseeable resulting voluntary decreases in domestic water softening, are adequate to ensure that there is no increase in TDS mass loading.

2.0 COMMENTS AND RESPONSES

TABLE 2-6  
CURRENT TDS (ACTUAL AND PERMITTED) VS. PROJECTED TDS

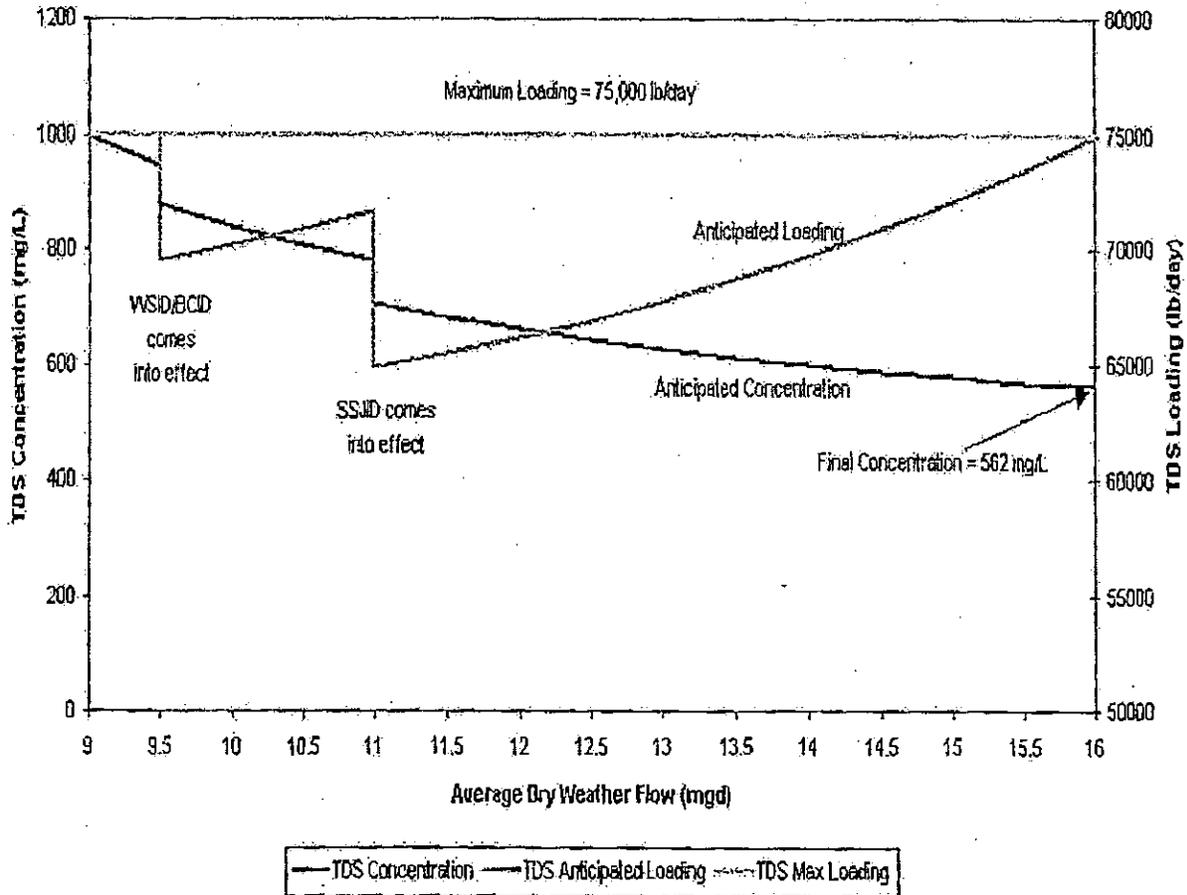
Source of TDS	Current Actual TDS Discharge In Pounds Per Day	Current Permitted TDS Discharge In Pounds Per Day	Projected TDS Discharge At Full Build-Out (16 MGD) In Pounds Per Day During Years Of Normal Rainfall	Projected TDS Discharge at Full Build-Out (16 MGD) In Pounds Per Day During Critically Dry Year
Groundwater	24,500	31,000	26,400	27,300
CVP	8,500	10,800	10,900	5,400
Plain View	N/A	N/A	400	N/A
WSID/BCID	N/A	N/A	8,100	N/A
SSJID	N/A	N/A	3,400	3,400
ASR	N/A	N/A	300	9,200
"Pick-up" Over Source Water	26,200	33,200	25,500	25,500
<i>Total</i>	59,200	75,000	75,000	70,800

Figure 2-8 describes the rate at which the concentration of the proposed project discharge will decrease as the City incorporates these low TDS sources of water. This graphic identifies water supply sources from WSID/BCID being incorporated into the City's source water prior to SSJID. However, the sequence of the two water sources will have no impact on the ultimate feasibility of the mitigation measure.

2.0 COMMENTS AND RESPONSES

FIGURE 2-8

Anticipated TDS Concentration and Loading with Increasing Flow



The City is currently implementing the shift in source water. On May 24, 2001, the City adopted Resolution 2001-178, which established the 2001 Groundwater Management Policy and Groundwater Allocation Program, and limits the City's extraction of groundwater to 9,000 AFY. In addition to limiting its use of groundwater, the City has obtained numerous rights to surface water, which would more than meet the needs of achieving the shift in source water. The following is a summary of some of the surface water sources that the City has obtained:

## 2.0 COMMENTS AND RESPONSES

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### *WSID/BCID:*

The City has executed agreements with local irrigation districts (e.g., West Side Irrigation District and Banta Carbona Irrigation District) for the purchase of portions of their Bureau of Reclamation contracts for Central Valley Project water. The combined total for the assigned contracts would provide the City with up to 10,000 acre-feet of water per year. This water has agricultural reliability, meaning that the quantity of water delivered would vary significantly from year to year depending on hydrologic conditions and endangered species impacts (e.g., 0 to 100 percent reliability). The proposed transfer (and the associated environmental documents) were approved by WSID/BCID on September 11, 2002, by the City on September 17, 2002, and are expected to be approved by the United States Bureau of Reclamation ("USBR") by September, 2003. This water supply has the potential to supplement City supplies on an annual basis and would likely be utilized as part of the initial John Jones Water Treatment Plant expansion in 2005. Another option is that this water could be utilized as part of the City's proposed groundwater banking program.

### *SSJID:*

The City is currently participating in the South San Joaquin County Irrigation District ("SSJID") South County Surface Water Supply Project. The City would receive up to 10,000 AFY of treated surface water under best-case conditions. This water supply would not require expansion of the John Jones Water Treatment Plant. BayKeepers and the Sierra Club challenged the SSJID EIR for failure to comply with CEQA. The trial court upheld the adequacy of the EIR; however the trial court ruling is currently the subject of an appeal. If the trial court is reversed, that decision will not impact the City's TDS efforts. If SSJID water is not available to the City, flow from the City's expanded treatment facility will be reduced accordingly.

### *Aquifer Storage and Recovery:*

Under the City's Aquifer Storage and Recovery Program, the City will inject surplus treated surface water into the groundwater basin for later extraction and consumption using a specially designed well system. The City has received a CALFED grant to pursue groundwater banking programs such as the Aquifer Storage and Recovery Program, and is currently moving forward with a demonstration project to test the injection and extraction rates achievable for treated surface water to be stored in the groundwater basin.

### *Other Sources:*

Although WSID/BCID, SSJID, and the Aquifer Storage and Recovery Program are examples of sources of low TDS waters that will become available to the City, additional sources of low TDS water may also become available. For instance, the Byron Bethany Irrigation District (BBID) has pre-1914 water rights. BBID takes water from the Sacramento-San Joaquin Delta (Delta) just upstream of the State Water Project pumps on the California Aqueduct. BBID has been considering construction of a pipeline from BBID's intake to the City WTP to provide raw water supply. The pipeline, if pursued, would likely be completed in the next 3 to 8 years, and would require separate environmental review.

Thus, although the shift to low TDS source water is not required under CEQA to mitigate for TDS or EC impacts, the City understands from the comment letters that TDS and EC levels are of concern to many persons within the region, and is therefore committing to this shift in order to contribute proactively to the region's environmental well being.

(b) *Nitrogen*<sup>18</sup>

Several commentors raised concerns regarding the proposed project's nitrogen levels. Projected nitrogen in the effluent support the conclusion that the proposed project's impacts upon nitrogen concentration in the receiving waters will be less than significant.

As described in the Draft EIR, nitrogen is a complex element that can exist in seven states of oxidation. [Draft EIR at page 4.6-15]. From a water quality standpoint, the nitrogen-containing compounds that are of most interest are total inorganic nitrogen, ammonia and nitrates. Consequently, the City's analysis focuses upon the proposed project's impacts upon concentrations of total inorganic nitrogen, ammonia, and nitrates in the receiving waters.

(i) *Ammonia*

Ammonia toxicity is a function of ammonia concentration, pH and the duration of exposure. The projected ammonia concentration from the proposed project will be approximately 0.2 to 3 mg/l, with a monthly average of 0.5 mg/l and with a pH of 8.0 or lower. Importantly, the proposed project's projected effluent concentration of ammonia is below the USEPA acute criteria for ammonia (5.6 mg/l at a pH of 8.0). The proposed project's projected average effluent concentration of ammonia is also below the USEPA chronic criteria for ammonia (1.24 mg/l at a pH of 8.0 and at the maximum monthly temperature in Old River of 77° F), which is based on a 30-day exposure at the criterion concentration.

Current available data identifies the ammonia concentration in the receiving waters to be 0.22 mg/l. While the proposed project's average effluent concentration for ammonia is expected to be above the current receiving water concentration, this impact is considered less than significant for the following reasons. First, the ammonia concentration in the City's current discharge from its secondary treatment facilities ranges from 15 to 30 mg/l. The proposed project (tertiary treatment with nitrification facilities) is expected to reduce ammonia concentration in the effluent by 14.8 mg/l to 27 mg/l, thereby resulting in a beneficial change to the receiving waters current concentration of ammonia, which is influenced by the City's current discharge. Second, both the current receiving waters' concentration of ammonia and the expected improved ammonia concentration in the receiving waters, as a result of the proposed project's installation of tertiary treatment and nitrification facilities, comply with the USEPA acute and chronic criteria for ammonia.

<sup>18</sup> The following comments raised concerns regarding nitrates: 1-11, 16-7, and 16-15.

## 2.0 COMMENTS AND RESPONSES

### (ii) Nitrates

The proposed project's effluent maximum concentration of nitrates is expected to be 10 mg/l as N. While the proposed project's concentration is identified as increasing over the current discharge concentration (due to installation of nitrification facilities), the proposed project's effluent concentration (undiluted) will not exceed the USEPA's primary MCL for drinking water of 10 mg/l as N; therefore, the increase is considered a less than significant impact. Moreover, the proposed project's incremental contribution to the nitrate levels in receiving waters is projected to be minimal. Although baseline data are not available for the nitrate concentrations at Old River near Middle River, Old River at Tracy Road Bridge, the CCWD diversion, the State Water Project diversion, and the CVP diversion, Table 2-7 summarizes predicted changes in nitrate concentrations, given the likelihood that the nitrate concentrations at those locations will be within the range of nitrate concentrations at Old River at the diffuser (1 mg/l, as N) and San Joaquin River at Brandt Bridge (3 mg/l, as N). Table 2-7 assumes a worst-case effluent concentration of 10 mg/l, as N.

**TABLE 2-7  
POTENTIAL INCREMENTAL NITRATE CONCENTRATIONS IN SOUTH DELTA**

Location	Proposed Project's (16 mgd at 10 mg/l) Incremental Impact Upon Baseline Nitrate Concentrations (9 mgd at 5 mg/l)				
	CAIRED No Action Scenario mg/l	CAIRED No Action Scenario with Old River Barrier mg/l	CAIRED No Action Scenario with Temporary South Delta Facilities mg/l	CAIRED No Action Scenario with Permanent South Delta Facilities mg/l	CAIRED Preferred Alternative with Permanent South Delta Facilities mg/l
Old River near Middle River	0.0	0.0	0.1	1.0	1.2
Old River at Tracy Road Bridge	0.3	0.4	0.4	0.5	0.5
San Joaquin River at Brandt Bridge	0.0	0.0	0.0	0.0	0.0
CCWD diversion	0.1	0.0	0.0	0.0	0.0
SWP diversion	0.1	0.1	0.1	0.0	0.1
CVP diversion	0.2	0.2	0.2	0.2	0.2

Notes: Above analysis based on following assumptions regarding nitrate conditions in South Delta:

Old River @ diffuser	1 mg/l
Old River near Middle River	Data are not available
Old River at Tracy Road Bridge	Data are not available
San Joaquin River at Brandt Bridge	1 to 3 mg/l
CCWD diversion	Data are not available
State Water Project diversion	Data are not available
CVP diversion	Data are not available

When considered in conjunction with existing nitrate levels (1-3 mg/l as N), the proposed project will not cause the receiving waters to exceed the USEPA primary MCL of 10 mg/l nitrate, as N under any of these scenarios.

### (iii) Total Inorganic Nitrogen

As set forth in Tables 2-3 and 2-13, the proposed project will decrease the concentration of total inorganic nitrogen from 20 mg/l to 10.5 mg/l, and will correspondingly also decrease the mass discharge into Old River (from 1,501.2 lbs/day to 1401.12 lbs/day). Therefore, the proposed

project's impact upon the concentration and mass of total inorganic nitrogen in the receiving waters is less than significant, and even beneficial.

(c) *Copper*<sup>19</sup>

Commentors expressed concern regarding the proposed project's impacts upon copper levels in the receiving waters. The proposed project's impacts upon copper concentrations are less than significant. Under the proposed project, the average copper concentration (5 ug/l) in the effluent will not exceed the CTR chronic criteria of 5 ug/l (adjusted for hardness) especially after proper consideration of (a) an appropriate water effect ratio ("WER");<sup>20</sup> (b) an appropriate dissolved to total translator;<sup>21</sup> and (c) a dilution/mixing zone.<sup>22</sup> (The application of any one of these site-specific methodologies will ensure that the average copper concentration will not exceed the chronic significance threshold.) Furthermore, the proposed project's maximum effluent concentration of 10 ug/l does not exceed the CTR acute criteria of 33 ug/l (adjusted for hardness). For these reasons, the impact of the proposed project is less than significant.

(d) *Dissolved Oxygen*<sup>23</sup>

Commentors raised concerns regarding the proposed project's impacts upon dissolved oxygen concentrations. Dissolved oxygen concentrations must be maintained above specified levels to support aquatic beneficial uses. Dissolved oxygen concentrations decrease as the concentration of substances that consume oxygen increase. As a result, changes in the concentration of substances that consume oxygen are frequently used as indicators of a corresponding change in dissolved oxygen concentrations.

The constituents in the proposed project effluent that demand the most oxygen are Biochemical Oxygen Demand (BOD) and ammonia. For instance, each pound of BOD discharged has an estimated oxygen demand of 2.5 pounds, while each pound of ammonia discharged has an oxygen demand of approximately 4.6 pounds.

<sup>19</sup> The following comment raised concerns regarding copper: 15-10.

<sup>20</sup> A "WER" is a value specified in the California Toxics Rule to address the difference in toxicity between natural waters and clean laboratory water. The CTR makes special note that a water effect ratio greater than 1.0 often exists for copper in natural waters. In fact, studies in the San Francisco Bay and other water bodies have indicated water effect ratios that range from 2.0 to 4.0. The WER values are high because copper toxicity is significantly reduced by the presence of organic and inorganic substances. The mix of organic and inorganic substances in the Delta would produce a WER value greater than 2.0.

<sup>21</sup> A "dissolved to total translator" refers to an adjustment that is made to reflect the impact (either beneficial or detrimental) of other conditions within the receiving body upon the toxicity of a particular constituent.

<sup>22</sup> "Mixing zone" refers to the area within the receiving waters in which the volume of effluent exceeds the volume of background waters. The application of a "mixing zone" allows the measurement for compliance to occur at the perimeter of the mixing zone, rather than at the point the discharge enters the receiving waters.

<sup>23</sup> The following comments raised concerns regarding dissolved oxygen and BOD: 15-10, 17-6, 17-8, 17-13, and 17-18.

## 2.0 COMMENTS AND RESPONSES

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The proposed project's impacts upon dissolved oxygen will be less than significant because the proposed project's installation of tertiary treatment and nitrification facilities will significantly reduce the amount of BOD and ammonia in the City's effluent. The proposed project will reduce the BOD concentrations from 15 mg/l to 5 mg/l (with a corresponding reduction in mass of 41 percent). The proposed project will reduce ammonia concentrations from 15 mg/l to .5 mg/l (with a corresponding reduction in mass of 93 percent). Because the proposed project will substantially reduce BOD and ammonia as compared to the current baseline, the City finds the proposed project's impacts upon dissolved oxygen to be beneficial.

In addition to the analysis above, some commentors requested analysis of dissolved oxygen data from the Stockton Deep Water Ship Channel. Although the City had analyzed the impacts of the proposed project upon the Stockton Deep Water Ship Channel, the Draft EIR did not include the results of that analysis because the analysis demonstrated that the proposed project's impacts were negligible if not beneficial. As illustrated above, the proposed project will *reduce* the oxygen demand as compared to the current baseline, and the proposed project's impacts upon dissolved oxygen upon the Stockton Deep Water Ship Channel will consequently be less than significant.

(e) *Organics, Including Bix (2-ethylhexyl) Phthalate*<sup>24</sup>

Commentors expressed concern regarding the proposed project's impacts upon organics, and in particular, bix (2-ethylhexyl) phthalate ("Bis 2") levels.

As indicated by Tables 2-3, 2-4 and 2-13, and as discussed herein, the City's upgrade from secondary to tertiary treatment will result in a significant decrease in concentration and mass of BOD and TOC (both indicators of the quantity of organic material); therefore, the proposed project's impacts will be less than significant.

The proposed project's specific impacts upon the concentrations of Bis (2-ethylhexyl) phthalate and other trace organics are similarly less than significant. For Bis-2, although the Draft EIR indicates that the proposed project's effluent would be the same as the current wastewater treatment plant's effluent (11 ug/l average, 18 ug/l maximum) [see Draft EIR 4.6-37], that conclusion was incorrectly based on Tracy effluent monitoring performed in 1993 and 1994, and does not take into account the shift from secondary to tertiary treatment. Data from the City of Santa Rosa's wastewater treatment plant indicates that the proposed project's effluent concentrations of trace organics, including Bis-2, will actually be less than the concentration in the current effluent.<sup>25</sup> This is due to the fact that the proposed project, like the City of Santa Rosa's wastewater treatment plant, includes aeration/nitrification/anoxic zone basins in which organic compounds are oxidized and volatilized. Data from the Santa Rosa tertiary wastewater treatment plant indicates that the proposed project will not only reduce concentrations of trace organics, including Bis-2, but will reduce them to non-detect levels (see Table 2-8).

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<sup>24</sup> The following comments raised concerns regarding bix (2-ethylhexyl) phthalate: 1-4, 1-5, 6-4, 13-3, and 15-10.

<sup>25</sup> Master Response Section 2.2.1.1.2 provides a detailed analysis of the similarities between the Santa Rosa wastewater treatment plant's characteristics and the proposed project's characteristics and likely impacts.

**TABLE 2-8**  
**TRACE ORGANICS EFFLUENT DATA FROM CITY OF SANTA ROSA**  
**SUBREGIONAL WASTEWATER TREATMENT PLANT**  
**(JAN '00 – OCT '01)**

Sampling Event	Bis (2-ethylhexyl) Phthalate		gamma-BHC		Dieldrin		Endosulfan		Heptachlor		Heptachlor Epoxide	
	Value (ug/l)	Detection Limit (ug/l)	Value (ug/l)	Detection Limit (ug/l)	Value (ug/l)	Detection Limit (ug/l)	Value (ug/l)	Detection Limit (ug/l)	Value (ug/l)	Detection Limit (ug/l)	Value (ug/l)	Detection Limit (ug/l)
1	ND	10	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05
2	ND	10	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05
3	ND	40	ND	0.09	ND	0.02	ND	0.04	ND	0.03	ND	0.83
4	ND	69	ND	0.09	ND	0.02	ND	0.04	ND	0.03	ND	0.83
5	ND	10	*		*		*		*		*	
6	ND	23.5	*		*		*		*		*	
7	ND	21	*		*		*		*		*	
8	ND	5	*		*		*		*		*	

\* This sampling event did not include sampling of this constituent.

\*\* The Detection Limit for Bis 2 varies due to hydrocarbon interferences in the laboratory effluent sample, and is not related to variations in Bis 2 concentrations. Further, lower detection limits for Bis 2 were used in 1996 and 1997 (2.5 and 5 ug/l) than for the data presented above; all quarterly values for Bis 2 in those two years were recorded as non-detect.

In accordance with the SIP and CTR, which recommend consideration of tidal flows for human health-based objectives, the City also considered the impact of tidal flows upon Bis 2 concentrations by identifying, and then applying, the harmonic mean flows.<sup>26</sup> Harmonic mean flows for each of the scenarios examined in the Draft EIR are summarized in Table 2-9.

**TABLE 2-9**  
**HARMONIC MEAN FLOWS – OLD RIVER NEAR TRACY DISCHARGE**

Condition	Harmonic Mean Flow (a) (cfs)
CALFED No Action Alternative	833
CALFED No Action Alternative with Old River Barrier	420
CALFED No Action Alternative with Temporary South Delta Barrier	219
CALFED No Action Alternative with Temporary South Delta Facilities	291
CALFED Preferred Alternative with Permanent South Delta Facilities	284 <sup>26</sup>

<sup>26</sup> Harmonic mean flow is defined as [Number of flow values]/[Summation of the reciprocals of each flow value].

## 2.0 COMMENTS AND RESPONSES

As further provided by the CTR and the SIP, the City then determined the minimum rate at which tidal flows will dilute effluent by dividing the minimum harmonic mean value by the average effluent discharge rate, which provides the dilution ratio. Consideration of the dilution ratio demonstrates that the proposed project's impacts upon trace organics will not cause an exceedance of the water quality criteria for human health protection. The results of that analysis are summarized in Table 2-10.

**TABLE 2-10  
PROJECTED TRACE ORGANICS CONCENTRATION IN OLD RIVER**

Pollutant	Projected effluent concentration (avg) (ug/l)	Concentration in Old River after mixing (a) (ug/l)	Chronic Standard per CTR (ug/l)	Compliance with Standard
Bis (2-ethylhexyl) phthalate	<5	<0.57	1.8	Yes
Dichlorobromomethane	1	0.11	0.56	Yes
Tetrachloroethylene	0.2	0.02	0.8	Yes
Chlorodibromomethane	ND	ND	0.41	Yes
Bromoform	0.2	0.02	4.3	Yes
Chloroform	5	0.57	NA (b)	(b)
Trichloroethylene	0.2	0.02	2.7	Yes

Note: Other trace organics are projected to be undetected in proposed effluent.

(a) Diluting flow = minimum harmonic mean flow = 219 cfs.

(b) No chloroform criteria were adopted in CTR. USEPA 304(a) advisory criterion for chloroform is 5.9 ug/l. The proposed project's effluent concentration is less than USEPA's 304(a) criteria.

Even a worst-case scenario that relies upon the lowest dilution factor, and a Bis-2 concentration less than 5 results in a finding of non-significance as compared to the chronic CTR standard. The minimum harmonic mean value is 219 cubic feet per second (cfs) (CALFED No Action scenario with temporary South Delta barriers in place). The applicable dilution rate is 8.7 to 1 (219 cfs divided by 24.8 cfs (16 mgd)). When the dilution rate of 8.7 to 1 is applied to the current effluent concentration of Bis-2, the expansion of the wastewater treatment plant to 16 mgd results in Bis 2 concentrations in Old River of 0.57 ug/l -- less than the CTR of 1.8 ug/l. For the foregoing reasons, the City concludes that the proposed project's impacts upon trace organics, and in particular, Bis 2 concentrations are less than significant.

### (f) *Thermal Impacts and Fisheries*<sup>27</sup>

Commentors raised concerns regarding the proposed project's thermal impacts. The species of most concern in this case are the Delta smelt, Sacramento splittail, Chinook salmon (winter, spring, fall and late-fall runs), and steelhead (Central Valley ESU). The primary concern with regard to temperature impacts is the creation of temperature plumes that may disorient migrating fish.

The proposed project's thermal impacts are potentially significant because they have the potential to adversely affect aquatic species that are listed under the federal or California Endangered Species Acts. However, as described below, the City has adopted measures to ensure that the proposed

<sup>27</sup> The following comments raised concerns regarding thermal impacts: 1-3, 15-10, 15-11, 16-14, 16-15, 17-17.

project will not reduce the number, or restrict the range, of listed species. Consequently, the City has determined that, after mitigation, the proposed project's thermal impacts on fisheries are less than significant.

The City relied upon compliance with the Thermal Plan to identify events that might impact aquatic species. Modeling indicates that there may be a violation of the Thermal Plan during three months of the year. Specifically, modeling indicates that there may be: (1) a 1.57 degree variation in temperature that obscures more than 25 percent of Old River in September; (2) a 1.46 degree variation in temperature that obscures more than 25 percent of Old River in November; and (3) a 1.12 degree variation in temperature that obscures more than 25 percent of Old River in December (Draft EIR Appendix G, Table 4, page 12).<sup>28</sup>

However, the technical violations of the Thermal Plan are not necessarily biologically significant.<sup>29</sup> In addition to the fact that the violations of the Thermal Plan are minimal [Draft EIR Appendix G, Table 4, page 12; Draft EIR Appendix G, Table 4, page 12 (showing that largest exceedance of the Thermal Plan is .57 degrees)], those violations probably will not be biologically significant because it is unlikely that any aquatic species that could be detrimentally affected by such small exceedances will be present at the time of their occurrence.

The violations of the Thermal Plan may not be biologically significant because of the composition and occurrence of various fish species within the Central Delta. The potential biological effects of exposure of Delta fish and macroinvertebrates to elevated water temperatures are a function of a variety of factors including the duration of exposure, the magnitude of temperature exposure, acclimation temperature, lifestage, and species. The response and tolerance of aquatic organisms to elevated water temperatures varies substantially among species. Responses to temperature exposure may include, but are not limited to, acute mortality, sub-lethal physiological changes, behavioral avoidance, behavioral attraction, and changes in feeding and growth rates.

Assessing the potential effects of the proposed project's discharge on aquatic organisms occurring or inhabiting Old River in the vicinity of the proposed discharge includes consideration of the seasonal timing for when organisms would be present in the area and potentially exposed to the discharge, ambient (acclimation) water temperatures, and the species-specific response to temperature exposure. Information is available from the scientific literature to provide general guidelines on the biological response for many of the species of organisms inhabiting the Delta, which have been used, in part, as the basis for this assessment. In addition, information derived from analyses of the thermal characteristics of the proposed discharge, in addition to information on the tidal currents and hydrodynamics patterns occurring within Old River, were also considered as part of this evaluation.

<sup>28</sup> Table 4 in Appendix G of the Draft EIR provides the maximum potential seasonal impacts of the proposed project on water temperature of Old River. This data is more applicable to the proposed project than the data cited on page 4.6-39 of the Draft EIR, which reflects data from Manteca.

<sup>29</sup> Although the Thermal Plan focuses upon the possibility of temperature variation, the Thermal Plan does not evaluate the biological significance of that variation. For instance, the temperature at a river may increase by 2° F across its width, thereby violating the Thermal Plan, but that increased temperature may have no effect upon biological resources because the species for which the river is being managed is not present during that period of the year.

## 2.0 COMMENTS AND RESPONSES

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The proposed project's impacts upon adult Chinook salmon survival, upstream migration, or subsequent reproduction affecting the population dynamics of San Joaquin River Chinook salmon stocks is not considered to be significant. Adult fall-run Chinook salmon migrate upstream through the Bay-Delta system during the fall (e.g., September – December), including adults that may migrate through Old River during their upstream migration to San Joaquin River tributaries. During the fall in recent years a temporary barrier has been installed at the Head of Old River to provide improved hydraulic flows downstream through the lower San Joaquin River, and improved dissolved oxygen concentrations that have previously been identified as a factor impeding the upstream migration of adult Chinook salmon. Installation of the Head of Old River Barrier is expected to substantially reduce the number of adult Chinook salmon migrating upstream through Old River, and therefore would reduce the potential risk and exposure of these fish to elevated temperatures associated with the proposed project's discharge.

Optimum water temperatures for adult Chinook salmon migration have been reported to range from approximately 49 to 58 F, with adult migration continuing to occur at temperatures up to approximately 68 F (Bell 1973). During the early fall months operation of the proposed discharge would potentially result in short-term (hours) increases in water temperature in the immediate vicinity of the discharge that would potentially affect adult Chinook salmon migration. The potential effect is considered to be limited to a small area within Old River, and would be of short duration responding to tidal hydraulics within the area. *Because salmon are known to be able to "hold" in protected areas for hours or even several days without adverse impacts on migration, even though a potential for short-term delays in adult Chinook salmon migration may occur, the biological effects of the proposed project's discharge on adult Chinook salmon survival, upstream migration, or subsequent reproduction affecting the population dynamics of San Joaquin River Chinook salmon stocks is not considered to be significant.*

Juvenile fall-run Chinook salmon emigrate from San Joaquin River tributaries (e.g., Stanislaus, Merced, and Tuolumne rivers) during the late winter and spring (February – mid-June). Fisheries studies (San Joaquin River Group 2001; California Department of Fish and Game ("CDFG") unpublished data) demonstrate that a portion of the juvenile outmigrating Chinook salmon migrate downstream into Old River where they would potentially be exposed to the proposed discharge. During years when spring flows in the San Joaquin River are less than approximately 7,000 cfs a temporary barrier has been constructed at the Head of Old River to reduce the numbers of juvenile Chinook salmon entering Old River, which would contribute directly to a reduction in the potential exposure of juvenile salmon to the proposed discharge. During years when San Joaquin River flows are high during the spring months, and the Head of Old River Barrier is not installed, the volume of flow entering Old River is increased, ambient water temperatures are typically reduced and therefore, the duration and magnitude of potential temperature exposure to the proposed project's discharge would be decreased thereby reducing the potential risk of adverse effects.

Information from the scientific literature is available to help provide a foundation for evaluating the potential risk of adverse effects of temperature exposure on juvenile Chinook salmon survival and migration behavior (e.g., potential for delays or blockage of migration) associated with the proposed discharge. Results of studies conducted by Brett (1952) and Hanson (1991) identified an acute mortality threshold (5 percent mortality) for juvenile Chinook salmon after 60-minute exposure to a

water temperature of 77° F. Pacific Gas & Electric Company (1992) conducted studies demonstrating an increase in the risk of juvenile Chinook salmon predation mortality following a 60-minute exposure to water temperature of 79° F. Gray *et al.* (1977) demonstrated that juvenile Chinook salmon behaviorally avoided a temperature of 16° F ( $\Delta T$ ) above ambient. Swanson and Cech (1995) identified the critical thermal maximum for acute mortality in juvenile Chinook salmon as 18° F ( $\Delta T$ ) above ambient temperatures.

Results of temperature modeling of the proposed project's discharge as shown in Table 2-12 indicate that the anticipated exposure of juvenile Chinook salmon within Old River would be at levels substantially below those identified in these scientific investigations. Based on results of thermal plume modeling and the findings of these various scientific studies it was concluded that exposure of juvenile Chinook salmon to the proposed discharge would not be expected to result in increased vulnerability to predation, acute mortality, behavioral blockage, or avoidance during downstream migration. *Although the temperature modeling shows a technical violation of the California Thermal Plan discharge temperature criterion, it was concluded from these analyses that exposure of juvenile Chinook salmon to the proposed project's discharge for a short period of time (hours or less) would not be expected to result in significant adverse effects, because, as noted above, salmon have the ability to "hold" in place and so avoid high temperatures without adverse effects on migration.*

Delta smelt inhabit the central Delta and would therefore potentially be vulnerable to adverse effects associated with the proposed discharge. Swanson and Cech (1995) conducted a series of laboratory investigations to identify the critical thermal maximum temperature threshold for delta smelt. Results of these laboratory investigations demonstrated that the upper thermal threshold for delta smelt is approximately 18° F ( $\Delta T$ ) above ambient. Results of thermal plume modeling for the proposed discharge as shown in Table 2-11 demonstrate that temperature exposure for delta smelt would not be expected to result in mortality for either juvenile or adult delta smelt. Information is not available on the behavioral response or potential for increased vulnerability to predation for delta smelt exposed to various water temperatures. *Based on results of the temperature modeling, and the range of ambient temperatures that have been observed to occur within the Delta where delta smelt have been present, it was concluded that the proposed project's discharge would not result in significant adverse effects on delta smelt.*

Sacramento splittail inhabit the central Delta year-round as juveniles, sub-adults, and adults, and would therefore potentially be exposed to elevated temperatures associated with the proposed discharge. Cech and Young (1995) conducted a series of laboratory investigations to determine the critical thermal maximum temperature threshold for acute mortality to young-of-the-year, juvenile, and sub-adult Sacramento splittail. Results of these investigations showed that the critical thermal maximum temperature for young-of-the-year splittail was approximately 22-25° F ( $\Delta T$ ) above ambient, 16-22° F above ambient for juvenile splittail, and 18-22° F above ambient for sub-adult splittail. Young and Cech (1995) identified the upper safe temperature for splittail exposure as 13-14° F above ambient for young-of-the-year splittail, 7-13° F above ambient for juvenile splittail, and 9-13° F above ambient for sub-adult splittail.

## 2.0 COMMENTS AND RESPONSES

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Results of water temperature modeling for the proposed discharge demonstrate that the anticipated temperature differential ( $\Delta T$ ) is substantially less than the temperatures identified as the upper safe threshold for Sacramento splittail. Based upon these results it is not anticipated that exposure of various lifestages of splittail to the proposed project's discharge would result in an increase in acute mortality. No information is available on the behavioral response or increased vulnerability of splittail to predation as a result of thermal exposure. Based upon results of the water temperature modeling, in combination with a consideration of the relatively small area of Old River affected by the thermal plume, the magnitude of temperature differential predicted by the model, and the anticipated short duration of potential exposure, it is not expected that splittail, which have been observed to inhabit areas of the Delta characterized by a relatively high range of ambient water temperatures would be adversely affected by the proposed project's discharge. *Although results of the temperature modeling demonstrate a technical violation of thermal plan temperature criteria, results of these analyses are consistent with the conclusion that the risk of significant adverse impacts to splittail are less than significant.*

A variety of other fish and macroinvertebrates inhabit the central Delta and Old River. These include striped bass, largemouth bass, catfish, amphipods, mysid shrimp, bay shrimp, and a number of other resident and migratory species. Species of fish and macroinvertebrates, which inhabit the Delta year-round, are characterized by a high tolerance to seasonal water temperature conditions (e.g., these are generally referred to as warm water species). Information on the thermal tolerance of these species, in combination with results of temperature modeling of the discharge into Old River, indicate that the proposed project is not expected to result in significant adverse effects on the resident community of fish and macroinvertebrates inhabiting Old River. Although the modeling results demonstrate a technical violation of the Thermal Plan temperature criteria, results of these analyses have not identified significant adverse biological impacts anticipated to occur as a result of temperature exposure within the proposed project's discharge and receiving waters. **Table 2-11** compares the temperature tolerances of the fish that are of the greatest concern biologically to: (1) the maximum temperatures that will likely occur under the proposed project; and (2) the temperature change ( $\Delta$ ) within the receiving waters that will be attributed to the proposed project.

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**TABLE 2-11  
COMPARISON OF AQUATIC SPECIES' TEMPERATURE TOLERANCE AND  
THE MAXIMUM PROJECTED TEMPERATURES IN OLD RIVER UNDER THE PROPOSED PROJECT**

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>Maximum Temperature in Old River with proposed project</i>	50.96°F	54.17°F	58.66°F	63.89°F	68.03°F	72.8°F	76.75°F	76.15°F	72.77°F	56.09°F	57.26°F	50.42°F
Adult Chinook Salmon	*	*	*	*	*	*	*	*	49° - 68°	49° - 68°	49° - 68°	49° - 68°
Juvenile Fall Run Chinook **Salmon	*	<72°F	<72°F	<72°F	<72°F	<72°F	*	*	*	*	*	*
<i>Change in Temperature Attributable to proposed project.</i>	Δ 0.96°F	Δ 0.77°F	Δ 0.56°F	Δ 0.59°F	Δ 0.53°F	Δ 0.70°F	Δ 0.65°F	Δ 0.95°F	Δ 1.57°F	Δ 0.99°F	Δ 1.46°F	Δ 1.12°F
Delta Smelt***	Δ 13 to 16°F											
Splittail***	Δ 7 to 13°F											

\*The species is not expected to be present in Old River during this month.

\*\*The temperature tolerances are based on short term exposures limited to minutes or hours.

\*\*\*Both Splittail and Delta Smelt are more sensitive to changes in temperature than to any maximum temperature that would occur in Old River occurring under typical ambient conditions. Consequently, Table 2-11 describes the temperature tolerances of Splittail and Delta Smelt in terms of temperature change (Δ) and compares that to the temperature change in the receiving waters that is projected to occur under the proposed project.

As Table 2-11 indicates, June and September are the only months in which the proposed project could result in temperatures that exceed the tolerance levels of the fish of concern. However, these exceedances are minimal (.8° in June, 4.77° September). In addition, the exceedances may only occur: (1) towards the end of June (as the waters warm), which would be after the juvenile fall run Chinook Salmon have left the area (early June); and (2) at the beginning of September (before the waters cool), before the adult Chinook salmon have entered the area (late September). Moreover, Table 2-11 indicates that even without the proposed project's incremental contribution of 1.57° F, the receiving water's temperature will exceed the tolerance of adult Chinook salmon. As a result, the adult Chinook salmon may already be avoiding the area during early September. Thus, even though the modeling, as presented in Table 2-11, suggests there may be some biologically significant thermal impacts in September and June, the minimal nature of these modeled impacts suggest that the proposed project may not result in any actual adverse impact upon aquatic species.

Nonetheless, the City is committing to the following mitigation measures to ensure that any thermal impacts will be less than significant. Specifically, the City will: (1) conduct four years of intensive monitoring of thermal impacts in the vicinity of the City's discharge to determine the thermal impacts, if any, associated with the proposed project;<sup>30</sup> (2) develop a reasonable range of mitigation measures that will ensure that the Project will not reduce the number, or restrict the range, of an endangered, rare, or threatened species; these measures include, but are not limited to, the mitigation measures identified in Table 2-12; and (3) upon completion of that monitoring, and absent the implementation of alternative mitigation measures resulting from consultation under the federal and the California Endangered Species Acts, the City will implement sufficient mitigation measures to ensure that the Project will not reduce the number, or restrict the range, of an endangered, rare, or threatened species. Mitigation Measure 4.6.1 has been amended to reflect these measures.

<sup>30</sup> The purpose of this monitoring is to provide additional site-specific information on seasonal and daily water temperature characteristics within the receiving waters of Old River. To this end, the City has already initiated temperature monitoring in the immediate vicinity of the existing Tracy wastewater treatment plant diffuser outfall and at locations upstream and downstream of the existing site to provide additional information on characteristics of ambient temperatures occurring within the proposed project area.

Over the past several decades, there has been extensive fisheries monitoring conducted in the delta by the California Department of Fish and Game ("CDFG"), the United States Fish and Wildlife Service ("USFWS"), U.S. Bureau of Reclamation ("USBR"), California Department of Water Resources ("DWR"), as well as a variety of other investigators coordinated under the Interagency Ecological Program ("IEP"), and as part of individual project types and specific studies. Information on the seasonal occurrence of fish species in the area of the proposed project is available, for example, from extensive fisheries monitoring performed by CDFG in the San Joaquin River at Mossdale and as part of the Old River barrier investigations. USFWS conducts beach seine surveys at a wide variety of locations throughout the Bay-Delta system. CDFG has also been conducting the spring 20 mm Delta smelt surveys, summer townet surveys, fall mid-water trawl surveys and resident delta fisheries surveys that provide an extensive long-term body of information on species occurrence and trends in abundance within the delta. USBR and DWR monitor fish salvage at the CVP and State Water Project SWP water export facilities that provide additional information on species occurrence within Old and Middle River areas of the delta. Given the extensive and detailed body of fisheries information generated through these and other ongoing monitoring programs, the available scientific information on fish and macroinvertebrate occurrence within the proposed project area is adequate for identifying the species at potential risk of exposure to the discharge plume.

**TABLE 2-12**  
**SUMMARY OF POTENTIAL ALTERNATIVE STRATEGIES TO**  
**ADDRESS THE PROPOSED PROJECT'S THERMAL IMPACTS**

No.	Strategy Description & Location	Result
1a	Mechanical Cooling w/ Cooling Tower (onsite at WWTP)	Tower designed to cool effluent to about 65 to 70 degrees F, when possible in Fall and Spring. Summer cooling to 70-80 degrees F.
1b	Mechanical Cooling w/Tower and Chillers (onsite at WWTP)	Designed to cool effluent to about 65 to 70 degrees F in Spring, Summer and Fall.
2	Passive Cooling in Pond/Wetland (onsite adjacent to WWTP)	Designed to cool effluent to 65 to 70 degrees F, when possible in Fall & Spring, to extent possible with current ponds; Summer cooling to 70 – 80 degrees F
3a	Utilize Effluent on Dedicated Lands--Seasonal Irrigation (onsite adjacent to WWTP)	Purchase Adjacent Land (e.g., Holly Sugar--about 1,000 acres of the 1,100 available). Irrigate Spring, Summer, and Fall
3b	Store/ Utilize Recycled Water for Use in Spring, Summer, and Fall (storage onsite adjacent to WWTP; irrigation offsite)	All Water during Summer stored and irrigated, and Fall/Spring water during sensitive periods stored and irrigated (about 4,000 to 5,000 acres)
4	Baseline Project – New Outfall w/o Effluent Cooling Project	Discharge highly treated water in new outfall at effluent temperature; use existing and new outfall for dilution w/receiving water

#### B. Cumulative Impacts<sup>31</sup>

In the Draft EIR, pages 4.6-53 and 5-5, the City determined that the proposed project may result in impacts that are not significant on their own, but are significant when viewed cumulatively with the impacts of other reasonably foreseeable projects [14 C.C.R. § 15130(a)(1) (stating that an EIR should not discuss impacts that do not result in part from the project evaluated in the EIR); 14 C.C.R. § 15130(1) (stating that “[w]here a lead agency is examining a project with an incremental effect that is not “cumulatively considerable,” a lead agency need not consider that effect to be significant”)].

Importantly, the proposed project *is environmentally beneficial* with regards to many cumulative impacts. For example, at a minimum, the proposed project will demonstrably reduce the level, both concentration and mass, of BOD, TSS, total inorganic nitrogen, ammonia, TDS, coliform, toluene, Bis-(2-ethylhexyl) phthalate, silver, and TOC in the City's effluent; therefore the City expects corresponding minor decreases in the receiving water (Table 2-13).

<sup>31</sup> The following comments raised concerns regarding cumulative impacts: 1-9, 13-3, 13-4, 15-9, 15-10, 16-15, 17-20.

2.0 COMMENTS AND RESPONSES

TABLE 2-13  
INCREMENTAL CHANGE – PROPOSED VERSUS PERMITTED CONDITION

Parameter	Existing Condition at Permitted Flow (9 mgd ADWF)		Proposed Discharge (16 mgd ADWF)		Mass Ratio (Proposed-Existing)
	Avg Concentration (mg/l)	Avg Mass (lbs/day)	Avg Concentration (mg/l)	Avg Mass (lbs/day)	
BOD	15	1,125.9	5	667.2	0.59
TSS	15	1,125.9	5	667.2	0.59
Inorganic Nitrogen					
Ammonia	15	1,125.9	0.5	66.72	0.06
Nitrate	5	375.3	10.0	1,334.40	3.56
<i>Total Inorganic Nitrogen</i>	20	1,501.2	10.5	1,401.12	0.93
Ultimate Oxygen Demand (including nitrogenous oxygen demand and BOD)	---	8,200	---	1,970	0.24
TDS	1,000	75,060	562	75,000	1.00
Silver	0.6 ug/l	0.05	0.2 ug/l	0.03	.60
Toluene	2 ug/l	0.15	<1 ug/l	<0.13	<.87
Bis-2	11 ug/l	0.83	<10 ug/l	<0.67	<.81
TOC	15	1,125.9	7.5	1,000.8	0.89

\* Existing concentrations based on City of Tracy data from 2000-2001.

Although the proposed project will improve water quality in general, the proposed project will maintain, or only slightly reduce, the current average concentration of some constituents in the effluent (i.e., copper). Therefore, it is possible for the mass to slightly increase in the receiving water. Table 2-14 identifies those constituents. The City recognizes that even though these increases are not individually significant, they may be cumulatively significant.

Importantly, for each constituent identified above, the concentration in the proposed project's effluent is at or below the significance threshold identified by the City. Thus, the City acted conservatively by determining in the Draft EIR that cumulative future impacts on surface water quality will be potentially significant.

Also important is that none of the constituents listed in Table 2-14, except for mercury, appear on the State's 303(d) List as impairing Delta Waterways. Thus, the slight increase in mass for constituents, such as arsenic (from 0.23 lbs/day to 0.27 lbs/day), will not in any way affect attainment with water quality standards. For mercury (projected mass increase from 0.0011 lbs/day to 0.0013 lbs/day), the fact that it is identified on the State's 303(d) List for Delta Waterways (source identified is resource extraction) does not require a finding that no assimilative capacity exists. See Master Response Section A. (2) and Response to Comment 15-9 for additional discussion on these points.

Finally, as noted by several commentors, the cumulative impacts discussion in the Draft EIR mentioned the State's Total Maximum Daily Load ("TMDL") program as a method by which any further mandated reduction in concentration and/or mass of 303(d) listed constituents would occur.

The City's purpose in identifying the TMDL program in the Draft EIR's cumulative impacts section was simply to satisfy CEQA's requirement that "past, present, and reasonably foreseeable future projects" affecting the receiving waters be evaluated. The City did not intend to rely upon the TMDL program as a measure to mitigate to a level less than significant the conservative finding of slight mass increase impacts; rather, since the concentration of all constituents identified in Table 2-14 meet all applicable significance thresholds, and because of the cost and environmental impacts associated with the installation and operation of reverse osmosis to further reduce the concentration and corresponding mass of the constituents identified above, the City has determined that mitigation of the identified impact through the installation of further advanced treatment to further reduce the concentration, and the corresponding mass, is infeasible. See Master Response Section 2.C.

TABLE 2-14  
CONSTITUENTS FOR WHICH THE PROJECT MAY RESULT IN A SLIGHT INCREASE IN MASS\*

Constituents For Which There May Be an Increase In Mass	Change in Effluent Concentration (Avg)	Current Mass (lbs/day)	Proposed Project Mass (lbs/day)
Copper	No Change	.45	0.67
Arsenic	1.0 ug/l decrease in Average	0.23	0.27
Cadmium	No Change	0.0038	0.0067
Mercury	.005 ug/l decrease	0.0011	0.0013
Nickel	No Change	0.18	0.33
Selenium	0.3 ug/l decrease	0.060	0.067
Zinc	No Change	2.25	4.60
Chloroform	1 ug/l decrease	0.45	0.67
Dibromochloromethane	1 ug/l increase	0.075	0.267
Bromoform	No Change	0.015	0.027
Bromodichloromethane = Dichlorobromomethane	No Change	0.015	0.027
1,4-dichlorobenzene	No Change	0.015	0.027
Chloromethane	No Change	0.075	.267
Tetrachloroethylene	No Change	0.015	0.027
Trichloroethylene	No Change	0.015	0.027

\* Mass calculated using average dry weather flow.

### C. Consideration of an Adequate Range of Alternatives<sup>32</sup>

#### (1) Consideration of Application Of The Discharge to Land

Several commentors expressed concern regarding the adequacy of the Draft EIR's alternatives analysis. In particular, commentors raised the issue of why the project did not explore disposal of treated effluent through land application. The Draft EIR did, in fact, consider land application in addition to several alternative outfall locations. The Draft EIR for the proposed project included two land application alternatives in its analysis: Maximum Summertime Reuse of Recycled Water (no seasonal storage) and Maximum Reuse of Recycled Water (with seasonal storage) [Draft EIR at 6-1, 6-35 – 6-50]. The Draft EIR provided information regarding why these alternatives may be deemed

<sup>32</sup> The following comments raised concerns regarding the alternatives analysis: 4-5, 4-6, 14-4, 15-6, 16-8, 16-18, 17-24.

## 2.0 COMMENTS AND RESPONSES

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infeasible based on the analysis and conclusions contained in the *City of Tracy Wastewater Treatment Plant Facilities Plan* (CH2M Hill, May 11, 2001). Those reasons follow.

The Maximum Reuse of Recycled Water (no seasonal storage) Alternative would reduce the volume of treated wastewater discharged to Old River by approximately 1,920 million gallons per year (5,800 acre-feet/year; under future conditions, a total of 6,900 million gallons per year processed). While decreasing the amount of effluent discharged to Old River may be considered a benefit to some commentors, this alternative would also result in impacts to land use, traffic and circulation, noise, air quality, geology and soils, biological resources and public services and utilities. These impacts would occur in association with construction of recycled water infrastructure to convey water to customers. While no customers have been identified to date, the type of distribution network required would be extensive and expensive to construct. Even after customers are identified, an outfall would still be needed to handle discharge during times when water is not fully reclaimed (*i.e.* Fall, Winter and Spring) (*City of Tracy Wastewater Treatment Plant Facilities Plan* (CH2M Hill, May 11, 2001), pages 6-7 and 6-8). For the above reasons, the Maximum Reuse of Recycled Water Alternative is not feasible.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would be sized to accommodate 100 percent of the annual volume of recycled water (*i.e.* 4,980 million gallons [mg] in multiple ponds occupying more than 500 acres) for wintertime peak flows. This would eliminate effluent discharge on all but the wettest days and months for the year. Reclaimed water that is not used during the summer would be stored during the remainder of the year for reuse in the next summer season. However, this alternative would also result in impacts to land use, traffic and circulation, noise, air quality, geology and soils, biological resources and public services and utilities in association with construction of full irrigation reuse facilities (for summertime flows and demands) and fully sized discharge facilities (for wintertime peak flows). (*City of Tracy Wastewater Treatment Plant Facilities Plan* (CH2M Hill, May 11, 2001), pages 6-8 and 6-10). For these reasons, the Maximum Reuse of Recycled Water (with seasonal storage) Alternative is not feasible.

Although discharge to land is not a feasible alternative for the proposed project, the City nonetheless recognizes that discharge to land is feasible in some circumstances. In fact, the City is pursuing discharge to land for the following projects for which it is feasible:

- (1) The Tracy Hills Interim Wastewater Reclamation Facility, Permanent Wastewater Reclamation Facility, and Storm Drainage Improvements Draft Environmental Impact Report (PMC, 2000 – SCH. No. 2000022002) included reclaiming effluent for agricultural uses. The project would minimize environmental impacts and maximize the opportunity for reuse of treated effluent in a manner that protects water quality and human health. During the interim phase of the project, a dedicated land application area is proposed to receive secondary treated effluent with no discharge to surface waters. Treated effluent would be utilized to irrigate fodder crops grown and harvested at the site for livestock consumption. The permanent wastewater reclamation facility proposes land application with tertiary treated water to meet the wastewater demand with no surface water discharge (winter storage). Effluent would be treated to meet State of California standards for unrestricted reuse pursuant to California Code of Regulations, Title 22 Division 4, section 60301 *et seq.*

The tertiary treated effluent would be used to irrigate schoolyards, parks, golf courses, public landscaped areas, and landscaped in industrial, commercial and professional office areas within the Tracy Hills Specific Plan area.

- (2) Earlier this year, Imperial Sugar (parent company of Holly Sugar) announced its intent to sell approximately 1,120 acres of excess lands belonging to the former Holly Sugar Company. This land is adjacent to the WWTP and is predominantly row cropland. Currently this land is irrigated by water pumped from the San Joaquin Delta and three wells located on the property.

The City of Tracy is currently studying the feasibility using the Holly Sugar land for reclaimed water use and open space preservation. "The Tracy Water Reuse and Open Space Preservation Assessment" will explore using recycled water for the following:

- (a) Water supply for row crops;
- (b) To make available additional surface water supply in the Delta for environmentally beneficial use;
- (c) Open space preservation;
- (d) Construction of wetlands to provide wildlife habitat and habitat conservation;
- (e) Continued agricultural use to preserve prime agricultural lands; and
- (f) Recreational opportunities including tours of constructed wetlands.

The expected outcome of this assessment is to determine whether water reuse and open space preservation are feasible on Holly Sugar excess lands (Bayley, pers. comm., 2002). The water reuse assessment will focus on assessing water reuse by using recycled water that is available after expansion of the existing wastewater treatment plant.

(2) *CALFED and Barrier Scenarios*

Commentors expressed concern as to whether the City considered an adequate range of CALFED and barrier scenarios. As discussed above in Master Response Sections A(1)(e) and A(1)(f), the City developed a range of CALFED and barrier scenarios in consultation with the Department of Water Resources. The City integrated these scenarios throughout its analyses of the proposed project's impacts. [See e.g., Draft EIR at pages 4.6-32 to 4.6-33 (describing the far-field analysis of the impacts of the five flow/operation conditions); Draft EIR, Appendix G (similarly describing the far field analyses consideration of the five flow/operation conditions); Master Response, **Figure 2-2** (Intradidal velocity under the five flow/operation conditions); Master Response, **Table 2-5** (Comparison of the incremental impact of the proposed project's effluent to the currently permitted effluent's impact upon receiving waters under the five flow/operation conditions); Master Response, **Figures 2-3 to 2-7** (providing the proposed project's impacts upon TDS concentrations in the receiving waters under the five flow/operation conditions); Master Response **Table 2-7**, (providing the proposed project's incremental impact upon nitrate concentrations under the five flow/operation conditions); Master Response Section A(3)(d) (describing the proposed project's impact to the Stockton Deep Water Ship Channel under the five flow/operation conditions); Master Response,

## 2.0 COMMENTS AND RESPONSES

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**Table 2-10** (identifying the harmonic mean flows in Old River under the five flow/operation conditions)].

(3) *Consideration of Installation of Advanced Treatment, Including Microfiltration/Reverse Osmosis*

As discussed in Draft EIR Section 6.0, the City considered using an ultra-violet disinfection process as an alternative to chlorination, but found that ultraviolet disinfection is infeasible because it: (1) is less consistent than chlorination in achieving water quality standards; (2) requires significantly more electricity than the current design, resulting in the traffic, air, noise, and land use impacts associated with the generation of such additional electricity; and (3) is not cost-effective at this time<sup>33</sup>.

The City also considered incorporating micro-filtration/reverse osmosis into the proposed project's design. However, the City's analysis disclosed that the construction and operation of reverse osmosis would result in potentially detrimental traffic and circulation, air, noise, geologic, and land use impacts. For example, because the number of disposal sites that can accept the highly concentrated brine produced by micro-filtration/reverse osmosis are extremely limited, transport of the brine to those locations could result in increases in PM<sub>10</sub> levels. In addition, the cost of reverse osmosis is prohibitive. As demonstrated in the City of Tracy's Wastewater Treatment Plant Draft Facilities Plan (Feb. 2001) (Facilities Plan), the estimated cost for adding reverse osmosis to the Proposed Project would include \$24,000,000 for equipment, \$2,400,000 for site work, \$2,400,000 for yard piping, \$2,800,000 for electrical, and \$1,900,000 for instrumentation. Thus the total capital cost for adding reverse osmosis is \$33,500,00, as compared to approximately 50% of the cost of the entire Proposed Project. Moreover, the City found that less costly mitigation measures could significantly reduce the impacts that might otherwise necessitate reverse osmosis. For instance, the City found that changes in the source of its water supply could dramatically reduce the effluent's TDS concentration to a level that would dilute the TDS levels within the receiving waters. For these reasons, the City determined that there are also no feasible alternatives to the proposed project's treatment processes that cause less environmental impacts than the proposed project.

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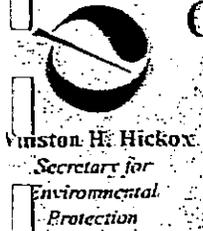
<sup>33</sup> In insert case study, the capital costs for ultra-violet disinfection were [\$], while the operations and maintenance costs were [\$].

## 2.3 RESPONSES TO INDIVIDUAL COMMENTORS

Letter No.	Commentor	Agency
1	Michael Kummer	California Regional Water Quality Control Board, Central Valley Region
2	Kenneth D. Landau	California Regional Water Quality Control Board, Central Valley Region
3	Larry L. Eng, Ph.D.	Department of Fish and Game
4	Joseph O. Spano, P.E.	Department of Health Services
5a	DeeDee Jones	Department of Water Resources
5b	DeeDee Jones	Department of Water Resources
6	Dan Peterson	Department of Water Resources
7	Terry Roberts	Governor's Office of Planning and Research
8	Terry Roberts	Governor's Office of Planning and Research
9	Terry Roberts	Governor's Office of Planning and Research
10	Patricia Gouveia,	State Water Resources Control Board
11	Robin Kirk	San Joaquin Department of Public Works
12	Chandler Martin	San Joaquin County Community Development Department
13	Walt Pettit	California Urban Water Agencies
14	Richard A. Denton	Contra Costa Water District
15	Bill Jennings	Delta Keeper
16	Eric Parfrey	Sierra Club
17	John Herrick	South Delta Water Agency
18	John Herrick	South Delta Water Agency
19	Christoffer Ellis	Pacific Gas and Electric Company
20	Rodney R. McInnis	United States Department of Commerce, National Oceanic and Atmospheric Administration – National Marine Fisheries Service
21	Rodney R. McInnis	United States Department of Commerce, National Oceanic and Atmospheric Administration – National Marine Fisheries Service
22	Patricia Gouveia,	State Water Resources Control Board
23	Patricia Gouveia,	State Water Resources Control Board
24	Jan C. Knight	United States Department of the Interior, Fish and Wildlife Service

# California Regional Water Quality Control Board Central Valley Region

Robert Schneider, Chair



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29 November 2001

Brian Grattidge  
State Clearinghouse  
1400 Tenth Street  
Sacramento, CA 95814

**SUBJECT: REVIEW OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR TRACY  
WASTEWATER TREATMENT PLANT EXPANSION (SCH # 2000012039), SAN  
JOAQUIN COUNTY**

A Draft Environmental Impact Report for the Tracy Wastewater Treatment Plant Expansion was received by the Regional Board on 24 October 2001. I have reviewed the sections in the report applicable to water quality and have several comments.

Near Field Impacts (Page 4.6-38)

"Tidal action causes reverse flows and prolonged periods of near slake water (several hours) at low river flows". During these periods, the acute toxicity of the effluent must be considered at the point of discharge. Without dilution during these short periods, the acute toxicity of the effluent must be considered at the concentrations discharged. Chronic effects must consider tidal action and multiple dosing of effluent that may provide minimal dilution over extended time frames. Further evaluation of the model may be necessary to clarify available dilution.

1-1

Temperature (Page 4.6-38)

The Manteca effluent temperatures were utilized to evaluate the effects of temperature on the receiving water. This is not necessary or appropriate. Tracy monitors effluent temperature daily, so there is data available for the Tracy discharge. This should have been used in the analysis.

1-2

As evaluated, the project is not expected to comply with the Thermal Plan. Appendix E (page 48) indicates the significance of temperature at the edge of a 21:1 mixing zone which potentially could create a barrier to fish migration. The Executive Summary Table (Table 1-1) indicates that a biological assessment and mitigation plan will be prepared, but does not present a mechanism for compliance. The Mitigation Measures in Appendix E fail to mention temperature.

1-3

Trace Organics (Page 4.6-42)

Trace organic data is indicated to be unavailable. This is not true. Organic data was generated and is available in Tracy's annual monitoring reports. Data from 1996, 1997, and 1999 were noted during this review.

Later, on page 4.6-47, the report indicated that the trihalomethanes detected in the Tracy discharge as well as any other organics that may be detected were less than significant. However, for example, I noted monitoring data that indicated a value of 79 ug/L (7 Dec 2000) in the effluent for Bis-(2-ethylhexyl) phthalate (DEHP). DEHP was not detected in the receiving water for 1996, 1997, and 1999. DEHP has an NTR value of 1.8 ug/L. Since DEHP is a human health issue for drinking water, harmonic mean flows need to be considered for the available dilution. The conclusion of *less than significant* for trace organics is based on the CVP and CCWD intakes not exceeding standards. The quality of plant effluent as discharged into Old River and Grant Line Canal was not addressed.

Total Dissolved Solids (Page 4.6-45)

The impacts of total dissolved solids (TDS) are not adequately addressed in the EIR. The southern one-third of the Delta is 303(d) listed as an impaired water body for total dissolved solids (TDS). The outfall is in the vicinity this impaired area, so the discharge may impact this 303(d) listed area. There are no US EPA water quality criteria for protection of aquatic organisms for TDS. However, its presence in water can be growth limiting to certain agricultural crops and affects the taste of the water for human consumption. The secondary California maximum contaminant level (MCL) for TDS is 500 mg/l as a recommended level, 1000 mg/l as an upper level, and 1500 mg/l as a short-term maximum. The recommended agricultural water quality goal for TDS is 450 mg/l as a long-term average.

Current effluent levels of TDS are about 1000 mg/L. The EIR evaluates TDS effects at the water intakes (CVP and CCWD) and considers these changes insignificant. The EIR does not consider that the receiving water is utilized for agricultural and is designated for municipal uses and that the effluent degrades the ability of the receiving water to be used for these purposes. Appendix E (page I4) states that "No water quality criterion currently exists for TDS...". The EIR does not recognize that there are water quality goals applicable to these waters which must be addressed in the NPDES permit.

Electrical Conductivity (Appendix E, Page 20)

The EIR also provides an inadequate evaluation of the impacts from electrical conductivity (EC). In reviewing the EC data, I found that all of the monitoring sites are outside of the South Delta Barriers. The San Joaquin River brings salt laden water north. Without barriers, 70% of this water flows through Old River to the Grant Line Canal. With the barriers, this fraction is greatly reduced. With regard to the CVP, SWP and the CCWD intakes, a large part of this water comes from the north and is influenced by the Sacramento River quality, thus the improved water quality in the southwest Delta as compared to the southeast Delta. Tidal action brings the better quality water from the west into the outfall area. The dynamics and quality of the water outside the barriers may reflect the extremes that may be expected in the project area, but does not adequately represent water quality in the project area.

Cumulative Impacts Assessment of Surface Water Quality (Page 4.6-57)

Appendix E states that cumulative impacts are not evaluated. The EIR determines that there are too many variables and that making any conclusions regarding cumulative effects are problematic. The EIR defaults to the TMDL program to define and resolve cumulative effects. The difficulties of quantitatively addressing these effects are understood, but qualitatively it is clear that an increase in load by several dischargers will have a cumulative effect on the receiving water. This effect will be negative with no changes in Delta management. Changes in Delta management could minimize or exacerbate the effect. Hoping for a mitigating effect from Delta management or waiting for TMDL implementation to resolve increased degradation does not address the environmental impacts of this project. Pursuing nondegradation of these waters by not increasing load would address the environmental impacts of this project.

1-9

The cumulative effects of the 303(d) listed pollutants are stated to be *significant and unavoidable*. The Executive Summary Table (Table 1-1) indicates that they will be addressed through State and Federal programs, not through State-specified mitigation measures. Again, the comments from the previous paragraph apply.

Also, Mountain House Development was not included in the list on page 81 of Appendix E. Mountain House was originally included in the list in Section 4.6, page 49. Mountain House will lead to additional cumulative impacts.

1-10

Additional Issues

Additional analysis should be conducted to forecast the nitrate levels in the effluent resulting from the modifications to the plant and to evaluate the impacts to the receiving water of the additional nitrate load. Nitrate concentrations will be increased in the effluent due to the proposed nitrification process. Denitrification was not proposed to remove the resulting nitrate, but may be required to meet possible nitrate effluent limitations. The levels and impacts to the receiving water of the increased nitrates were not evaluated in the EIR. The EIR recognized the potential nitrogen nutrients that may be found in the effluent and receiving water, but only addressed the ammonia form.

1-11

If you have any questions, please contact me at (916) 255-3072.



MICHAEL KUMMER  
Environmental Scientist  
NPDES Section

cc: Mr. Steve Bayley, Public Works Department, City of Tracy

**LETTER 1**

California Regional Water Quality Control Board – Central Valley Region  
November 29, 2001  
Michael Kummer, Environmental Scientist, NPDES Section

**RESPONSE TO COMMENT 1-1**

*Commentor raises concerns regarding whether the Draft EIR adequately analyzed acute and chronic toxicity, given the impact of tidal action upon the effluent.*

A. Acute toxicity

*Specifically, Commentor states that acute toxicity must be considered at the point of discharge under slack water conditions.* Ammonia, trace metals, and whole effluent toxicity generally present the greatest acute toxicity concerns. As Master Response Section A and the individual responses set forth below demonstrate, the City has considered the impact of the concentration of a range of constituents, including ammonia and trace metals, at the point of discharge and with *no* dilution. In all instances, the proposed project will meet or be below acute criteria set forth in the Basin Plan and CTR. Due to the facility upgrade from secondary to tertiary treatment with nitrification, the proposed project's impacts will be less than significant, and even beneficial. Thus, there is no need to consider further the proposed project's impacts on acute toxicity to establish that the proposed project's impacts will be less than significant.

1. Ammonia

*See* Master Response Section A(3)(b)(i), which addresses the proposed project's impacts upon ammonia, and describes the proposed project's design elements that will significantly reduce ammonia concentration in the effluent. The ammonia concentration in the proposed project's effluent may reach a maximum of 3.0 mg/l at a pH of 8.0, less than the USEPA's acute toxicity for ammonia of 5.6 mg/l at a pH of 8.0. Accordingly, the proposed project's impact will be less than significant.

2. Trace Metals

Even assuming no dilution within the receiving waters, the proposed project will comply with acute water quality criteria for trace metals. *See* Master Response Table 2-4. Table 2-15 demonstrates the maximum predicted effluent concentration of metals compared to acute criteria at a hardness of 260 mg/l as CaCO<sub>3</sub>.

**TABLE 2-15  
ACUTE TOXICITY EVALUATION – TRACE METALS**

Trace Metal	Projected Maximum Effluent Concentration (ug/l) (Draft EIR Table 3-5)	Acute Standard (ug/l)	Ratio Max Effluent to Acute Standard (percent) (b)
Arsenic	4	340	1.18
Cadmium	0.1	12 (a)	0.83
Chromium VI	1	16	6.25
Copper	10	33.1 (a)	30.21
Lead	1	180 (a)	0.56
Mercury	0.015		none
Nickel	5	1,051 (a)	0.48
Silver	0.5	17.8 (a)	2.81
Zinc	50	263 (a)	19.01

Notes: Acute standards are as adopted by USEPA in the California Toxics Rule (May, 2000).

(a) Based on minimum observed effluent hardness of 260 mg/l as CaCO<sub>3</sub>.

(b) Ratios less than 100 percent indicate compliance with acute criteria in undiluted effluent, and thus, an insignificant impact.

### 3. Whole Effluent Toxicity

The City performs whole effluent acute toxicity tests on a quarterly basis in conformance with the monitoring program set forth in the City's existing NPDES permit. The results of that testing over the past two years (2000 and 2001) indicate consistent compliance with the requirement to achieve 90 percent survival as a median, and 70 percent survival or greater in all tests. Because the proposed project will improve effluent quality, the City expects that the proposed project will result in continued compliance with whole effluent acute toxicity requirements.

#### B. Chronic toxicity.

*Commentor notes that chronic toxicity must consider tidal action and multiple dosing over extended time frames.*

#### 1. The Impact of Tidal Action And Multiple Dosing On Chronic Toxicity

The characterization of dilution conditions at or near the City's discharge is a complex process that cannot be resolved with certainty. Although it is impossible to foresee all events that could affect tidal action, the City has identified and analyzed, to the extent possible, several variables that affect dilution conditions. Master Response Sections A(1)(e) and A(1)(f) discuss the methodology used for arriving at the tidal influence assumptions that provide the basis for the City's analysis. This individual response summarizes some of the key factors affecting tidal action and dilution.

With two high rate diffusers, tertiary treated effluent will be rapidly mixed into Old River as a typical discharge plume. This will occur when flow is reduced to zero past the diffuser. Dilution will be lowest during periods of tidal flow reversal and reduced flow past the diffuser during conditions

when tidal barriers are essentially closed at head of Old River, and at locations downstream of the City's discharge point.

Moreover, the available dilution varies with the averaging period in question. Tidal reversals and multiple dosing reduce the dilution on an hourly time scale. Water movement away from the diffuser during tidal excursions increases dilution daily to a four-day time scale. [Master Response Section A(1)(f)(i), Figure 2-2]. Such excursions may extend for several miles in the South Delta. As flows in the river resume, the plume will disperse in the direction of flow. A plume that stretches 40 feet downstream from the diffuser, with a 20:1 dilution at its periphery, conservatively represents 4-day average dilutions. Predicted worst-case low flow conditions under various Delta operational scenarios provide the basis for this plume's representation.

Commentor's concern regarding whether the City has adequately considered the impact of multiple dosing upon chronic toxicity is addressed by: (1) the City's comparison of the proposed project's effluent to chronic water quality criteria without the benefit of any dilution (finding no significant impact); and (2) the results of the City's whole effluent chronic toxicity testing, required by the City's current NPDES permit, which confirm that the City is not contributing to chronic toxicity in the receiving waters. Since the proposed project improves the effluent quality, the City expects continued compliance with whole effluent chronic toxicity requirements.

a. Ammonia

See Master Response Section A(3)(b), which addresses the proposed project's impacts upon ammonia, and describes the proposed project's design elements that will reduce ammonia concentration in the effluent. The ammonia concentration in the proposed project's effluent will, on average, be 0.5 mg/l at a pH of 8.0, less than the USEPA chronic toxicity criteria of 1.24 mg/l. Accordingly, the proposed project's impact will be less than significant.

b. Trace Metals

Further investigation into the impact of tidal flows and dilution upon compliance with chronic water quality criteria with regard to trace metals is unnecessary because predicted levels of trace metals in the proposed project's effluent are all less than the chronic criteria set forth in the CTR and Basin Plan objectives. (See Master Response Table 2-4 and Table 2-16, below)

2.0 COMMENTS AND RESPONSES

TABLE 2-16  
CHRONIC TOXICITY EVALUATION – TRACE METALS

Trace Metal	Projected Average Effluent Concentration (ug/l) (from Draft EIR Table 3-5)	Chronic Standard (ug/l)	Ratio Max Effect to Chronic Standard (percent) (b)
Arsenic	2.0	150	1.33
Cadmium	0.05	1.3 (a)	38.46
Chromium VI	0.05	11	0.45
Copper	5	5 (a)	100.00
Lead	0.5	1.17 (a)	42.73
Mercury	0.01	NA	None
Nickel	2.5	28.9 (a)	8.65
Silver	0.5	1.05 (a)	47.62
Zinc	30	65 (a)	46.15

Notes: Chronic standards are as adopted by USEPA in California Toxics Rule (May, 2000)

(a) Based on hardness of 50 mg/l as CaCO<sub>3</sub>.

(b) Any ratio at or less than 100 percent indicates compliance with the chronic criteria, and is thus an insignificant impact.

Since the City evaluated compliance without factoring in any dilution, no further analysis of dilution is necessary to demonstrate compliance with chronic water quality criteria for trace metals at the point of discharge.

c. Whole Effluent Toxicity

Results of whole effluent chronic testing conducted by the City over the past two years using secondary treated effluent and the USEPA three species freshwater test (fathead minnow, water flea, and an algal species), indicates occasional reproductive effects for the water flea at dilutions less than 3 to 1. The chronic water flea test is a six-day event. As noted below, over longer averaging periods, dilution of the City's effluent is higher due to the combination of initial dilution and tidal mixing. It is anticipated that dilution will exceed 3:1 at a short distance from the diffusers at an averaging period of several days. However, since the chronic toxicity testing discussed above was performed on secondary treated effluent, the City expects improved results of whole effluent chronic toxicity testing due to the proposed project's upgrade from secondary to tertiary treatment facilities with nitrification.

Response to Comment 1-2

*The Commentor raises concerns regarding the relevancy of the Manteca data to the analysis of the proposed project's temperature impacts.*

See Master Response Section A(3)(f) for a discussion of the proposed project's thermal impacts, including a discussion as to the relevancy of the Manteca data to the proposed project.

**Response to Comment 1-3**

*Commentor raises concerns regarding whether the Draft EIR provides an adequate mechanism for compliance with the Thermal Plan.*

The Draft EIR identifies compliance with the Thermal Plan as one means of ensuring that the Project will not reduce the number, or restrict the habitat, of listed species. CEQA Guidelines Section 15126.4(a)(1)(b) allows lead agencies to rely upon performance standards, along with potential strategies for ensuring compliance with those performance standards, as mitigation. The City has incorporated several potential mitigation measures as part of Mitigation Measure 4.6.1, described in Master Response Section A(3)(f), to ensure that the proposed project will not reduce the number, or restrict the habitat, of listed species.

**Response to Comment 1-4**

*Commentor notes that trace organics data are available for the existing Tracy effluent. Commentor also states that existing secondary effluent concentrations for bis (2-ethylhexyl) phthalate exceeded the National Toxics Rule standard of 1.8 ug/l.*

Although data exists for the existing effluent, the relevancy of that data is significantly limited, as the data reflects a secondary, rather than a tertiary, treatment process. Consequently, the City elected to use tertiary treatment data from the City of Santa Rosa (a tertiary treatment facility virtually identical to the proposed City of Tracy facility) that would provide a more accurate prediction as to the proposed project's impacts. See Master Response Section A(3)(e) for a discussion of the use of the City of Santa Rosa's tertiary treatment facility's data to predict the impacts of the proposed project as compared to the City's proposed project.

**Response to Comment 1-5**

*The Commentor raises concerns regarding Trihalomethanes.*

See Master Response Table 2-4 and Section A(3)(e) for a comparison of the proposed project's discharge of trihalomethanes to the CTR criteria for acute and chronic toxicity confirming that the impact of the proposed project is not significant.

**Response to Comment 1-6**

*Commentor raised concerns regarding the Projects Impacts upon concentrations of trace organics at Old River and Grant Line Canal.*

See Master Response Table 2-4 and Section A(3)(e) for a comparison of the proposed project's discharge of trace organics impacts to the CTR criteria for acute and chronic exposure, confirming that the proposed project's impact upon trace organics is not significant and may in fact be beneficial. Importantly, the "worst case scenario" analyzed in Master Response Section A(3)(e)

## 2.0 COMMENTS AND RESPONSES

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provides an over-estimation of the Proposed Project's impacts. This is because the impacts described in Section A(3)(e) would be diluted as the water flows towards the Grant Line Canal.

### Response to Comment 1-7

*Commentor notes that South Delta is 303(d)-listed for TDS and indicates that the proposed discharge may impact this area. Commentor states that while there are no USEPA water quality criteria for protection of aquatic organisms for TDS, this parameter may be growth limiting to certain agricultural crops and affects the taste of water for human consumption. Commentor notes that the California Secondary Maximum Contaminant Level (MCL) for TDS is 500 mg/l as a recommended level, 1,000 mg/l as an upper level, and 1,500 mg/l as a short-term maximum. Commentor notes that the recommended agricultural water quality goal for TDS is 450 mg/l as a long-term average. Commentor states that the EIR must evaluate impacts of the Tracy discharge at a concentration of 1,000 mg/l.*

The City appreciates commentor's concerns regarding TDS impacts. Although the City has determined that the proposed project's impact upon TDS levels are not significant for purposes of CEQA, the City has nonetheless responded to commentor's concerns by committing to shift its source water to a supply with lower TDS. Specifically, the City will incorporate increasing amounts of low TDS surface water into the City's source water, such that the City will be able to implement the proposed project without increasing the concentration or mass of TDS over current levels. Master Response Section A(3)(a) describes this mitigation measure in detail.

### Response to Comment 1-8

*Commentor raises concerns regarding whether the Draft EIR adequately evaluates compliance with EC standards within the Delta barriers.*

An analysis of project impacts within the South Delta has been performed using the results from far field modeling analysis (Master Response Section A(3)(a)). EC and TDS are linearly correlated: EC in micromhos per centimeter (umhos/cm) = TDS in mg/l X 1.75. Effluent and receiving water data confirms this correlation. As described in Master Responses Section A(3)(a), the proposed project will maintain the current level of TDS discharged and, as a result, will likely decrease the concentration of TDS in the receiving water. Therefore, the EC concentration will also be maintained and/or decreased under all barrier scenarios. Because the proposed project will have a beneficial impact upon TDS and EC concentration in the effluent and receiving water, the City determined that the proposed project's impacts upon TDS and EC are less than significant.

### Response to Comment 1-9

*Commentor states that Draft EIR does not analyze cumulative impacts. Commentor states that the Draft EIR defaults to the TMDL program to define and resolve cumulative effects. Commentor states that it is clear, qualitatively, that increased loads will have a cumulative effect on the receiving water, which is disclosed in Section 4.6 of the Draft EIR.*

Master Response Section B addresses the commenter's concerns regarding the cumulative impacts analysis for the proposed project. In addition, Master Response Section 2.A and Sections A and B summarize the proposed project's beneficial contributions to many water quality parameters of concern. Specifically, the proposed project takes significant steps to reduce the concentration and mass of TDS, EC, BOD, TSS, ammonia, TOC, coliform, trace organics, and trace metals (e.g. silver) in the effluent and receiving water.

**Response to Comment 1-10**

*Commentor requests that the Mountain House development be added to the list on page 81 of Appendix E, as it will lead to additional cumulative impacts.*

Although Appendix E of the Draft EIR did not include a discussion of the Mountain House Community Service District project, that project is included in cumulative impacts analysis within the main body of the Draft EIR at Section 4.6 (page 4.6-52). The Mountain House Community Service District project will also be added to Appendix E by Errata.

**Response to Comment 1-11**

*Commentor states that additional analysis should be conducted to forecast nitrate levels in effluent and to evaluate the impacts to the receiving water.*

As explained in more detail in Master Response Section A(3)(b), the City has sufficiently addressed the proposed project's impacts upon nitrate levels. The projected incremental increase of nitrate is minimal, ranging from 0.0 mg/l to 1.2 mg/l, depending upon the location in the receiving waters and the configuration of the barriers. Importantly, even with this incremental increase, none of the resulting nitrate levels will exceed the USEPA's MCL for nitrates of 10 mg/l. Finally, although the proposed project will incrementally increase nitrate levels, the proposed project will decrease ammonia by 93 percent as compared to current conditions, and will decrease the total inorganic nitrogen load by 7 percent as compared to current conditions. Consequently, the City determined the proposed project's impacts to nitrates to be less than significant.



# California Regional Water Quality Control Board

## Central Valley Region

Robert Schneider, Chair

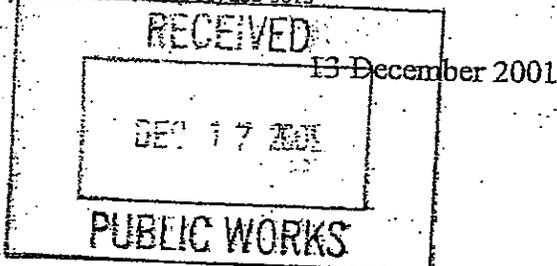


Gray Davis  
Governor

Winston H. Hickox  
Secretary for  
Environmental  
Protection

Sacramento Main Office

Internet Address: <http://www.swrcb.ca.gov/rwqcb5>  
3443 Roubier Road, Suite A, Sacramento, California 95827-3003  
Phone (916) 255-3000 • FAX (916) 255-3015



Mr. Steve Bayley  
Deputy Director of Public Works  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

**SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT FOR TRACY WASTEWATER TREATMENT PLANT EXPANSION (SCH # 2000012039), SAN JOAQUIN COUNTY**

The Regional Board submitted comments to the Draft Environmental Impact Report (DEIR) for the Tracy Wastewater Treatment Plant Expansion on 29 November 2001. The comments noted significant inadequacies in the evaluations and mitigations for several items including temperature, trace organics, total dissolved solids, electrical conductivity and cumulative effects. We are aware that other parties have also provided comments regarding these and other issues.

Due to the significance of the issues presented in these comments, the Regional Board requests that the City of Tracy address the comments and recirculate the DEIR for public comment. Recirculation of the DEIR is merited when significant new information is received prior to certification. The impacts not adequately addressed in the draft EIR will have to be addressed before an NPDES Permit can be issued for expansion of the Tracy WWTP. These studies should be completed within the EIR process.

If you have any questions, please contact Michael Kummer at (916) 255-3072.

KENNETH D. LANDAU  
Assistant Executive Officer

Attachment: Regional Board Comments to the DEIR-29 November 2001

**LETTER 2**

California Regional Water Quality Control Board – Central Valley Region  
December 13, 2001  
Kenneth D. Landau, Assistant Executive Officer

**Response to Comment 2-1**

*Commentor summarized comments made in the November 29, 2001 letter from the Regional Board. Commentor noted that other parties made comments on the same and other issues.*

The comments noted are addressed in responses to specific comments made in Comment Letter 1 and in Responses to Comment letters 4, 6, 15, 17.

**Response to Comment 2-2**

*Commentor states that the responses to the issues identified in Comment 2-1 necessitate recirculation of the Draft EIR.*

The request to address comments contained in the Regional Board's November 29, 2001 letter and recirculate the Draft EIR has been noted. According to Section 15088.5 of the CEQA Guidelines, recirculation is required when new significant information identifies significant new environmental impacts resulting from the project or a new proposed mitigation measure, or a substantial increase in the severity of an environmental impact unless mitigation measures are adopted that reduce the impact to a level of insignificance. All comments in the November 29, 2001 letter have been addressed above (*see* Response to Comment Letter 1), and any additional analyses performed. This analysis did not result in the identification of any significant new impacts, or substantial increases in the severity of any impact evaluated in the Draft EIR that cannot be mitigated to less than significant. Therefore, recirculation of the Draft EIR is not required.

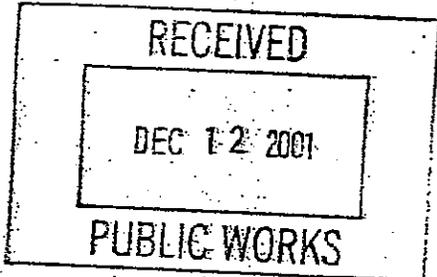
## DEPARTMENT OF FISH AND GAME

SACRAMENTO VALLEY AND CENTRAL SIERRA REGION

1701 NIMBUS ROAD, SUITE A

RANCHO CORDOVA, CALIFORNIA 95670

Telephone (916) 358-2900



December 5, 2001



Mr. Steve Bayley  
 City of Tracy  
 520 Tracy Boulevard  
 Tracy, CA 95376

Dear Mr. Bayley:

The Department of Fish and Game (DFG) has reviewed the draft Environmental Impact Report (DEIR) for the Tracy Waste Water Treatment Plant Expansion project (SCH # 2000012039). The project involves addition of new plant facilities at the existing site to increase plant capacity from 9.0 million gallons per day (MGD) to 16.0 MGD, construction of a new discharge pipeline and diffuser, and an upgrade of existing equipment to meet new state and federal effluent discharge requirements. The project is located north of Tracy, in San Joaquin County.

Wildlife habitat resources consist of the existing wastewater treatment plant and a variety of agricultural and natural habitats along the outfall pipeline route. Significant natural resources of the project include habitat for sensitive species. The following are our recommendations:

The DEIR fails to discuss the project's potential for impacts to the riparian brush rabbit (*Sylvilagus bachmani riparius*). Recent surveys conducted by Dr. Daniel Williams of California State University, Stanislaus have disclosed the presence of the riparian brush rabbit along Paradise Cut near the western end of Stewart Tract. Dr. William's trap locations are near the proposed route of the outfall pipeline.

We recommend that the DEIR be revised to contain the results of a survey that is designed to disclose the presence of the riparian brush rabbit. We also recommend that this survey be conducted in consultation with the U.S. Fish and Wildlife Service. If riparian brush rabbits are found to be inhabiting the project area, we recommend that the DEIR be revised to contain mitigation which reduces direct, indirect, and cumulative impacts to the riparian brush rabbit to a level that is not significant.

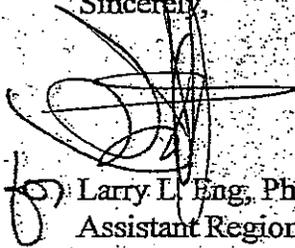
This project will have an impact to fish and/or wildlife habitat. Assessment of fees under Public Resources Code Section 21089 and as defined by Fish and Game Code Section 711.4 is necessary. Fees are payable by the project applicant upon filing of the Notice of Determination by the lead agency.

Mr. Steve Bayley  
December 5, 2001  
Page Two

Pursuant to Public Resources Code Sections 21092 and 21092.2, the DFG requests written notification of proposed actions and pending decisions regarding this project. Written notifications should be directed to this office.

Thank you for the opportunity to review this project. If the DFG can be of further assistance, please contact Mr. Dan Gifford, Associate Wildlife Biologist, at (209) 369-8851 or Ms. Terry Roscoe, Habitat Conservation Supervisor, at (916) 358-2883.

Sincerely,



Larry L. Eng, Ph.D.  
Assistant Regional Manager  
Fisheries, Wildlife and Environmental Programs

cc: Ms. Heather Bell  
U.S. Fish and Wildlife Service  
2800 Cottage Way, Room W2605  
Sacramento, CA 95825-1888

Ms. Terry Roscoe  
Mr. Dan Gifford  
Department of Fish and Game  
Rancho Cordova, CA 95670

Mr. Steve Bayley

- 2 -

13 December 2001

cc: Frances E. McChesney, State Water Resources Control Board, Sacramento  
Brian Grattidge, State Clearinghouse, Sacramento  
Richard Denton, Contra Costa Water District, Concord  
John Herrick, South Delta Water Agency, Stockton  
Walt Pettit, California Urban Water Agency, Sacramento  
Bill Jennings, DeltaKeeper, Stockton  
Eric Parfrey, Sierra Club, Stockton

**LETTER 3**

Department of Fish and Game

December 5, 2001

Larry L. Eng, Ph. D. Assistant Regional Manager, Fisheries, Wildlife and Environmental Programs

**Response to Comment 3-1**

*The commentor suggests that the biological resources analysis in the Draft EIR is inadequate and fails to address construction impacts associated with the proposed outfall pipeline and water quality impacts from effluent discharge.*

The commentor suggests that the biological resources analysis in the Draft EIR is inadequate and fails to address construction impacts associated with the proposed outfall pipeline and water quality impacts from effluent discharge, but provides no evidence to counter the detailed analysis in the Draft EIR. As identified in Section 4.8 (Biological Resources) of the Draft EIR, potential biological resource impacts from construction of the entire length of the proposed outfall pipeline were considered. Significant impacts associated with the construction of the proposed outfall pipeline identified by the Draft EIR included impacts to the northwestern pond turtle (Impact 4.8.1), nesting raptors (including Swainson's hawk) and migratory birds (Impact 4.8.2), western burrowing owl (Impact 4.8.3) special-status fish species (Impact 4.8.4) and jurisdictional waters of the U.S. (Impact 4.8.5). These impacts cannot be "quantified" at this point in the project, given the transient behavior of some of the animal species and lack of detailed construction plans for the diffuser placement within Old River. However, CEQA does not require that impacts be quantified.

Regarding impacts to Swainson's hawk, the commentor fails to note that Impact 4.8.2 specifically addresses potential impacts to nesting Swainson's hawk from construction activities and that Mitigation Measure MM 4.8.2 specifically requires avoidance of active nests, rather than payment of fees.

Master Response Section A(3)(f) addresses the mitigation measures for fisheries and temperature impacts to Old River (Impacts 4.6.1 and 4.8.4) as well as impacts to jurisdictional waters of the U.S. (Impact 4.8.5). [14 C.C.R. § 15126.4(a)(1)(B) (specifically authorizing the use of performance standards for mitigation)].

The riparian brush rabbit was considered in Section 4.8 (Biological Resources) of the Draft EIR. The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) identifies that the riparian brush rabbit is known to occur within riparian areas along Paradise Cut and Old River within the project area. The "riparian zone" within the context of this document refers to areas immediately adjacent to Old River, Tom Paine Slough, and Paradise Cut that are dominated by hydrophytic vegetation such as cottonwood, willow, California black walnut, and shrub/vine species such as California wild grape, button-willow, sandbar willow, and Himalyan blackberry. Riparian vegetation is within the zone influenced by subsurface moisture from the adjacent waterbody and generally shows an abrupt vegetative break between hydrophytic and upland plant species. Project construction activities are not expected to impact the riparian brush rabbit given that outfall pipeline construction within riparian zones would involve microtunneling or other trenchless technology that

## 2.0 COMMENTS AND RESPONSES

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would avoid construction activities and trenching from occurring within riparian habitat along Paradise Cut (riparian habitat only occurs along Old River well outside of the project area. However, to ensure that construction activities are adequately setback from riparian habitat areas that may contain riparian brush rabbit, the following modifications are made to Mitigation Measure MM 4.8.5c.

- On pages 1-22 (Table 1-1) and 4.8-28, the following text changes are made to Mitigation Measure MM 4.8.5c:

**“MM 4.8.5c** Prior to any work within Old River or adjacent to riparian habitat along Paradise Cut, the California Department of Fish and Game should shall be contacted to determine whether or not a Streambed Alteration Agreement is required, pursuant to Section 1600 of the California Fish and Game Code. If required, the City project applicant shall coordinate with California Department of Fish and Game in developing appropriate mitigation, and shall abide by the conditions of any executed permits. In either event, the City shall adopt a riparian brush rabbit protection program (in consultation with California Department of Fish and Game and U.S. Fish and Wildlife Service) for construction activities in the land area between Paradise Cut and Old River that will include the following protection measures:

- All ground disturbance and construction activities shall maintain a 300-foot buffer from the outer edge of the dripline of riparian vegetation, as set forth in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan.
- Temporary fencing to prohibit rabbits from entering the construction area shall be placed along the edge of the riparian vegetation and removed after the completion of construction activities.
- A qualified biologist shall be present during construction activities to ensure that riparian brush rabbits are not harmed by construction.
- Construction activities shall be scheduled as advised by California Department of Fish and Game and U.S. Fish and Wildlife Service.
- Construction activities shall avoid riparian zones. The "riparian zone" within the context of this document refers to areas immediately adjacent to Old River, Tom Paine Slough, and Paradise Cut that are dominated by hydrophytic vegetation such as cottonwood, willow, California black walnut, and shrub/vine species such as California wild grape, button-willow, sandbar willow, and Himalyan blackberry. Riparian vegetation is within the zone influenced by subsurface moisture from the adjacent waterbody and generally shows an abrupt vegetative break between hydrophytic and upland plant species.

*Timing/Implementation:* Prior to commencement of any construction activities between Paradise Cut and Old River the issuance of permits for any work within Old River.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, California Department of Fish and Game and U.S. Fish and Wildlife Service.

STATE OF CALIFORNIA—HEALTH AND HUMAN SERVICES AGENCY

GRAY DAVIS, Governor

## DEPARTMENT OF HEALTH SERVICES

SOUTHERN CALIFORNIA BRANCH  
DRINKING WATER FIELD OPERATIONS BRANCH  
31 E. CHANNEL STREET, ROOM 270  
STOCKTON, CA 95202  
(209) 948-7696  
FAX (209) 948-7451



December 11, 2001

Robert Conant, Senior Planner  
City of Tracy  
520 Tracy Blvd.  
Tracy, CA 95376

Comments on Draft Environmental Impact Report (October 2001)  
for Tracy Wastewater Treatment Plant Expansion Project (SCH#  
2000012039)

The Department is in receipt of a draft Environmental Impact Report (EIR) dated October 2001, for the City of Tracy's (City) Wastewater Treatment Plant Expansion Project. The EIR was prepared to meet the requirements of California Environmental Quality Act (CEQA).

The City's existing wastewater treatment plant provides secondary treatment and disinfection before discharging to Old River and has design flow capacity of 9.0 MGD. Over the next decade, new commercial and residential development within the City is expected to increase the average wastewater flow to the plant from 6.5 to 16.0 MGD. The proposed project will increase plant capacity by installing additional facilities, while simultaneously upgrading the plant in anticipation of more stringent effluent discharge requirements.

4-1

For the City of Tracy, the source of surface water is the Delta Mendota Canal (DMC), which flows along the west side of the City. A conventional type surface water treatment plant is provided for treatment of the source water, which is pumped from the DMC canal.

As you are aware, the Department is concerned that the City recycles a portion of its treated wastewater into the DMC via Old River. Now with the proposed expansion of the wastewater treatment plant, it is anticipated that an additional amount of about 7 MGD of treated wastewater would be discharged into Old River. A portion of this wastewater would eventually be transferred to the DMC. This would further degrade the quality of the DMC water, which is a drinking water source for the City. This impact is

4-2

exacerbated by the City's plans to increase its dependence on the DMC for water for its domestic water system from 15 MGD to 30 MGD as the wastewater discharge increase

4-2

Note that the Department is not opposed to the wastewater treatment plant expansion project, it strongly opposes any additional wastewater discharge into Old River as long as the City utilizes water from the DMC as a source of water for domestic supply.

4-3

Furthermore, the Department is concerned about the additional loading of organic contaminants that will be discharged into Old River with the expanded discharge. The concern is related to the recreational and drinking water beneficial uses of Old River and the aqueduct systems that pump water from the Delta to provide drinking water for most of California south of the Delta, including Tracy. Although the concern related to Tracy would be ameliorated somewhat if the City could utilize the California Aqueduct in lieu of the DMC as its drinking water source, the discharge into Old River will also impact California Aqueduct users to some extent.

4-4

It is the Department's position that prior to increasing the wastewater treatment plant capacity, the City should explore and propose the feasibility of any other methods (in addition to discharging into Old River) that can be used to dispose of the additional treated wastewater. The Department notes that no other method was considered and/or discussed in the draft EIR as recommended by the Department in its comments on the NOE of the draft EIR for the wastewater treatment plant expansion project.

4-5

Therefore, in the final EIR, the Department would like the City to identify and analyze all possible scenarios regarding alternative use of the additional wastewater effluent so that discharging into Old River can be avoided. For example, the treated wastewater can be used to irrigate agriculture lands, golf courses, for freeway landscaping, etc. Another alternative would be to discharge the additional wastewater effluent into any other canal, stream, or river other than Old River. It would be most beneficial if some local irrigation district could utilize the wastewater for irrigation of crops.

4-6

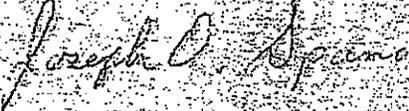
Also, the results of the analyses currently being conducted to define and/or justify the level of treatment (secondary or tertiary) that will be required for the expanded wastewater plant before discharge of the effluent into Old River should also be discussed in the final EIR. The Department recommends at least tertiary-2.2 treatment.

4-7

City of Tracy - Draft Wastewater EIR

Page 3

Thank you for an opportunity to review the draft EIR. If you have further questions regarding this matter, please contact Tahir Mansoor of this office at (209) 948-3879.



Joseph O. Spano, P.E.  
District Engineer  
Drinking Water Field Operations Branch  
Stockton Office

Cc: Katie Shulte, Project Analyst, State Clearinghouse, Office of  
Planning and Research, 1400 Tenth St.,  
P. O. Box 3044, Sacramento, CA 95812

A:\1201-Draft EIR for wastewater plant

**LETTER 4**

Department of Health Services  
December 11, 2001  
Joseph O. Spano, P.E.  
District Engineer  
Drinking Water Field Operations Branch  
Stockton Office

**Response to Comment 4-1**

*Commentor provides introductory remarks to the letter.*

Since no comments were made regarding the adequacy of the Draft EIR, no further response is required.

**Response to Comment 4-2**

*Commentor expresses concerns regarding the proposed project's potential impacts on the Delta Mendota Canal, and states that a portion of the treated wastewater presently "recycles" into the Delta Mendota Canal (DMC).*

The percentage of treated effluent from the Tracy facility that reaches the DMC intake has been estimated in the Draft EIR using the RMA far field hydrodynamic and water quality models. [Master Response Section A(1)(f)(i) (discussing the RMA water quality modeling methodology)]. That modeling indicates that the reasonable worst-case dilution of the tertiary effluent from the proposed project ranges from 30:1 to 43:1 at the DMC intake. Such dilution minimizes the effect of the Tracy effluent on water in the DMC.

*Commentor states that an increased discharge will further degrade the quality of water in the DMC.*

Because of the shift to low TDS source water, along with the facility upgrade from secondary to tertiary treatment, the proposed project will actually decrease the concentration and mass of BOD, TSS, total inorganic nitrogen, ammonia, TDS, EC, trace organics, some metals (e.g., silver), coliform, and TOC. [Master Response Section A(3)]. For the remaining metals and THMS, the proposed project will maintain and/or decrease the concentration in the City's discharge. As such, the proposed discharge will marginally improve the quality of water in the South Delta and DMC intake.

*Commentor states that the City plans to increase withdrawals from DMC for water supply and that this increase will exacerbate the degradation of drinking water for the City.*

Increased use of water from the DMC will not increase water supply-associated health risks to Tracy residents. There will be no increase in water supply-associated health risks because the proposed project will not significantly affect DMC water quality. Moreover, it should be noted that all raw

## 2.0 COMMENTS AND RESPONSES

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surface water taken from the DMC is treated in a drinking water treatment plant to levels specified in the Safe Drinking Water Act prior to distribution to the City users.

### Response to Comment 4-3

*Commentor states that DHS strongly opposes increased discharge to Old River as long as the City uses DMC for supply.*

The water quality analysis performed for the Draft EIR, the information provided in the Master Responses and in this response indicate that DHS' position opposing the proposed project is not supported by factual evidence. First, because of the shift to low TDS source water along with the facility upgrade from secondary to tertiary treatment, the proposed discharge will marginally improve the quality of water in the South Delta and DMC intake. Second, the City recently certified the John Jones Water Treatment Plant Expansion EIR which included consideration of changing the City's water source from the DMC to the California Aqueduct. Third, in accordance with the mitigation measures identified to maintain TDS concentration to that currently discharged, the City is pursuing other sources of water. Possible sources include the West Side Irrigation District and Banta-Carbona Irrigation District, the Kern Water Bank (KWB), the Byron Bethany Irrigation District, groundwater banking and South San Joaquin County Irrigation District (SSJID) South County Surface Water Supply Project.

### Response to Comment 4-4

*Commentor states that DHS is concerned about the possibility of additional loading of organics within Old River. Specifically, Commentor states a concern regarding the impact of increased organics loading on recreational and drinking water uses (Tracy and other users).*

Master Response Section A(3)(e) provides a detailed response to commentor's concern regarding the proposed project's impacts on organics.

### Response to Comment 4-5

*Commentor states that no other methods of disposal were examined aside from discharging into Old River.*

Master Response Section 2.C discusses the alternatives considered by the City, including discharge to land.

### Response to Comment 4-6

*Commentor requests that the City identify and analyze all possible scenarios to avoid discharge into Old River.*

Please see Master Response Section 2.C and 14 C.C.R. § 15126.6(a) (stating that “[a]n EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.”).

**Response to Comment 4-7**

*Commentor expresses concern regarding the level of treatment.*

Tertiary treatment will be provided using chemical coagulation, filtration, and chlorination; nitrification will also be added, further improving water quality. Facilities have been planned conservatively assuming an average Turbidity (water clarity) objective of 2 NTU (nephelometric turbidity units) and a 30-day median Total Coliform Bacteria criteria of 2.2 Most Probable Number (MPN)/100 ml. These are the numerical criteria set forth in the State of California’s Title 22 regulations for the highest quality of water, unrestricted reuse, which are more stringent than objectives applicable to discharges to surface waters. However, to avoid over investing in concrete flocculation and chlorine contact basins that are not necessary for discharges into surface waters, the City is not proposing at this point to meet all the requirements in Title 22 for classifying the water “unrestricted” until customers who require that level of treatment for re-use are identified.

LETTER 5a

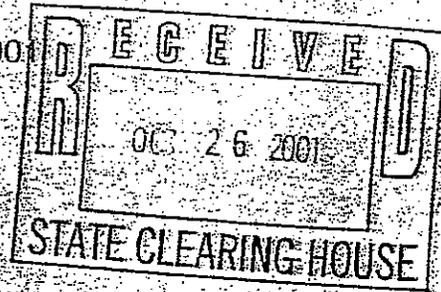
STATE OF CALIFORNIA — THE RESOURCES AGENCY

GRAY DAVIS, Governor

DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836  
SACRAMENTO, CA 94236-0001  
(916) 653-5791

October 24, 2001



City of Tracy  
520 Tracy Boulevard  
Tracy, California 95376  
Attention: Steve Bayley

*Clear  
10/2/01  
e*

**Tracy Wastewater Treatment Plant Expansion Project**  
State Clearinghouse (SCH) Number: 2000012039

Staff for The Department of Water Resources has reviewed the Draft Environmental Impact Report provided through the SCH and provides the following comments:

Portions of the proposed project are located within and/or across regulated streams (Old River, Paradise Cut, Tom Paine Slough)) over which The Reclamation Board has jurisdiction and exercises authority. Section 8710 of the California Water Code requires that a Board permit must be obtained. Section 8710 of the California Water Code requires that a Board permit must be obtained prior to start of any work, including excavation and construction activities, within floodways, levees, and 10 feet landward of the landside levee toes. A list of streams regulated by the Board is contained in the California Code of Regulations, Title 23, Section 112.

5a-1

Section 7 of the Regulations states that additional information, such as geotechnical exploration, soil testing, hydraulic or sediment transport studies, biological surveys, environmental surveys and other analyses may be required at any time prior to Board action on the application.

Section 8 of the Regulations states that applications for permits submitted to the Board must include a completed environmental questionnaire that accompanies the application and a copy of any environmental documents if they are prepared for the project. For any foreseeable significant environmental impacts, mitigation for such impacts shall be proposed. Applications are reviewed for compliance with the California Environmental Quality Act.

For further information, please contact me at the above address or telephone (916) 574-0373.

*Dee Dee Jones*  
Dee Dee Jones, Chair  
Environmental Review Committee

cc: Governor's Office of Planning and Research  
State Clearinghouse  
1400 Tenth Street, Room 121  
Sacramento, CA 95814

**LETTER 5a**

Department of Water Resources

October 24, 2001

DeeDee Jones Chair, Environmental Review Committee

**Response to Comment 5a-1**

*Commentor notes that the Reclamation Board has jurisdiction over portions of waterways that could be impacted by the proposed project.*

In order to comply with the provisions of the California Water Code, the City must obtain a permit from the Reclamation Board prior to the start of any work at or near these waterways. The City will comply with all applicable permit requirements to the satisfaction of the Reclamation Board. The Draft EIR adequately addresses the environmental effects associated with the proposed outfall pipeline, and will be the CEQA document used for permit approval. The comment does not address the adequacy of the document. No further response is required.

## DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836  
SACRAMENTO, CA 94236-0001  
(916) 653-5791

November 15, 2001



Steve Bayley  
City of Tracy, Public Works Department  
520 Tracy Boulevard  
Tracy, CA 95376

State Clearinghouse (SCH) Number: 2000012039

Staff for the State Department of Water Resources has reviewed the environmental document provided through the SCH and offers the following comments:

The proposed Tracy Wastewater Treatment Plant Expansion connects to Old River and Tom Paine Slough, regulated stream over which the Reclamation Board has jurisdiction. Section 8710 of the California Water Code requires that a Board permit be obtained prior to start of any work, including excavation and construction activities, within floodways, levees, and 10 feet landward of the landside levee toes. A list of streams regulated by the Board is contained in the California Code of Regulations, Title 23, Section 112.

Section 7 of the Regulations states that additional information, such as geotechnical exploration, soil testing, hydraulic or sediment transport studies, biological surveys, environmental surveys and other analyses may be required at any time prior to Board action on the application.

Section 8 of the Regulations states that applications for permits submitted to the Board must include a completed environmental questionnaire that accompanies the application and a copy of any associated environmental documents that have been prepared for the project. For any foreseeable significant environmental impacts, mitigation for such impacts shall be proposed. Applications are reviewed for compliance with the California Environmental Quality Act.

For further information, please contact me at the above address or telephone (916) 574-0373.

A handwritten signature in cursive script that reads "Dee Dee Jones".

DeeDee Jones, Chair  
Environmental Review Committee

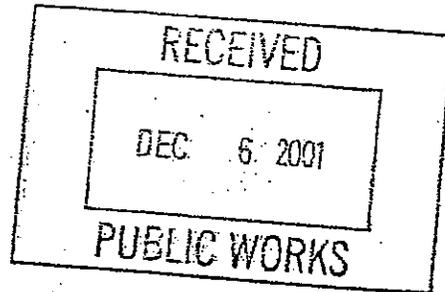
cc: Governor's Office of Planning and Research  
State Clearinghouse  
1400 Tenth Street, Room 121  
Sacramento, CA 95814

DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836  
SACRAMENTO, CA: 94236-0001  
(916) 653-5791



December 5, 2001



Mr. Steve Bayley  
Public Works Department  
City of Tracy  
520 Tracy Boulevard  
Tracy, California 95376

SCH No. 2000012039  
Draft Environmental Impact Report For The Tracy Wastewater Treatment Expansion

Dear Mr. Bayley:

Thank you for the opportunity to review the Draft Environmental Impact Report For The Tracy Wastewater Treatment Plant Expansion. The City of Tracy proposes to expand their current wastewater treatment plant and increase its discharge capacity to Old River from 9 MGD to 16 MGD. The expansion plans include the construction of a new discharge pipeline and diffuser for effluent disposal to Old River.

The Old River is located in the Sacramento-San Joaquin Delta and represents a significant source of drinking water for about two-thirds of California's population. The Department of Water Resources draws water from Old River into Clifton Court Forebay where it is exported from Banks Pumping Plant into the California Aqueduct. DWR takes an active role in evaluating the suitability of Delta water as a drinking water source with programs that seek to identify and prevent sources of water quality degradation.

Our comments and recommendations are as follows:

We support the City of Tracy in their proposal to increase the quality of the effluent it discharges to Old River. The City's commitment to tertiary treatment of its wastewater provides improvement in many water quality constituents. However, as the DEIR states in Table 4.6-17, TDS concentration will not be reduced as a result of the proposed increased treatment. In fact, Table 4.6-21 illustrates a calculated increase in TDS loading at the CVP and CCWD export locations from this proposed expansion; However, the DEIR does not include analysis of TDS impacts of the proposed project at the SWP diversion point. Increases in TDS loading in south Delta waters compromises the ability of the CVP and the SWP to meet Delta water quality standards required by the State Water Resource Control Board in Decision 1641. Higher TDS concentrations in source water can also cause the CVP and SWP to incur substantial operational and water supply costs while SWP municipal water contractors may bear increased treatment costs as a result.

6-1  
6-2  
6-3

Mr. Steve Bayley  
December 5, 2001  
Page 2

Although the DEIR fails to reveal the TOC concentration in the projected effluent in Table 4.6-17, it does project an increase TOC concentration at the SWP and CCWD diversion points. Elevated levels of TOC result in the formation of disinfection-by-products when source water is treated for municipal use and the by-products, THMs, are suspected carcinogens. Treatment costs saved by wastewater producers may very well be borne by municipal water users as a result of increased TOC concentrations in Delta water.

The DEIR relies on mathematical models to project effluent concentrations that would be discharged to Old River. While models are valuable tools, the data from mathematical models are not intended to provide absolute predictions of future conditions. The model's data are instead meant to be used in the comparison of the outcomes of alternative actions. We strongly recommend that the City of Tracy establish an ongoing monitoring program that analyzes its wastewater effluent and reports in real time to ensure that Old River does not suffer further water quality degradation. In addition, while we are in favor of the City of Tracy's decision to implement tertiary treatment as part of this WWTP expansion, we recommend the inclusion of enhanced treatment alternatives. Alternatives such as reverse osmosis and membrane filtration would help ensure that the City's wastewater discharge is not a detriment to this important waterway.

If you have any questions regarding our review of this DEIR, please call Larry Joyce, Chief, Water Quality Control Section, at (916) 653-7213 or your staff may call Tim Smith, at (916) 653-0955.

Sincerely,



Dan Peterson, Chief  
Environmental Assessment Branch  
Division of Operations and Maintenance

cc: State Clearinghouse  
Office of Planning and Research  
1400 Tenth Street, Room 121  
Sacramento, California 95811

6-4

6-5

6-6

## 2.0 COMMENTS AND RESPONSES

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### LETTER 6

Department of Water Resources

December 5, 2001

Dan Peterson, Chief, Environmental Assessment Branch, Division of Operations and Maintenance

#### Response to Comment 6-1

*Commentor offers general introductory comments regarding DWR's review of the Draft EIR.*

Comment does not address the adequacy of the Draft EIR and no further response is required.

#### Response to Comment 6-2

*Commentor stated that the Draft EIR does not include analysis of TDS impacts at the State Water Project (SWP) diversion point.*

The City appreciates commentor's concerns regarding impacts upon TDS levels at the SWP diversion point. As described in Master Response Section A(3)(a), the City determined the proposed project's impacts upon TDS concentration at the SWP diversion point to be less than significant. Nonetheless, to address long-term regional environmental goals that go beyond the minimum standards required by CEQA, the City has committed to decreasing the TDS concentrations in the source water for the proposed project, such that the proposed project will maintain the current permitted amount (lbs/day) of TDS in the effluent. The decreased in concentration will beneficially affect the receiving waters, including the SWP diversion point.

#### Response to Comment 6-3

*Commentor states that higher TDS concentrations can result in higher operational and water supply costs for the CVP and SWP as well as higher treatment costs for municipal water treatment contractors.*

As described in Master Response Section A(3)(a), the City has committed to decreasing the TDS concentrations in the source water for the proposed project, such that the proposed project will maintain the current permitted amount (lbs/day) of TDS in the effluent. The decrease in concentration will beneficially affect the receiving waters, including the CVP and SWP diversion points. Thus, no increase in operational and water supply costs will occur.

#### Response to Comment 6-4

*Commentor states that the Draft EIR fails to reveal the TOC concentration in the projected effluent in Table 4.6-17.*

The projected maximum effluent TOC concentration is 10 mg/l. The projected average effluent concentration is 7.5 mg/l.

*Commentor states that elevated levels of TOC result in the formation of disinfection by-products in the course of surface water treatment for municipal use.*

As demonstrated in Master Response Tables 2-3 and 2-13, the TOC level in the City's discharge will be reduced from 15 mg/l to 7.5 mg/l. Thus, a decrease in both concentration and mass is expected to occur. Therefore, the proposed project will have no significant impact on the cost or operation of municipal drinking water facilities, and will not cause an increase in the formation of disinfection by-products.

**Response to Comment 6-5**

*Commentor states that the City should establish an ongoing monitoring program that analyzes its wastewater effluent and reports in real time.*

As described in Master Response Section A(1)(a), the City currently monitors a number of water quality parameters in its effluent and in Old River on a regular basis in accordance with the monitoring program set forth in the City's existing NPDES permit. Monitoring frequency varies by parameter, ranging from weekly for a number of effluent parameters to quarterly for whole effluent toxicity in effluent. In addition, the City is increasing the monitoring for certain water quality parameters, including temperature. Master Response Section A(3)(f) discusses the increased monitoring that will occur with regard to temperature.

**Response to Comment 6-6**

*Commentor stated that City should consider reverse osmosis and membrane filtration to ensure discharge is not a detriment to Old River.*

See Master Response Section C for a discussion of the installation of reverse osmosis and membrane filtration. In the Facilities Planning phase of the project, tertiary treatment was identified as the appropriate level of treatment to meet the project objectives of permitting expansion at a reasonable cost while minimizing possible water quality impacts of the expansion on the receiving water. Based upon comments received from interested parties on the Notice of Preparation (NOP) on this project, the Facilities Plan included an analysis of the costs and impacts of implementing advanced treatment processes, including reverse osmosis and microfiltration, and the conclusions of that analysis were presented in the Draft EIR discussing treatment and disposal alternatives [See Draft EIR Section 6.0]. That analysis indicated that the installation of more advanced treatment alternatives would result in significant costs to the City, including a major increase in energy consumption and impacts due to potential brine disposal, traffic, air, noise, and land use with extremely minor improvements in water quality benefits to the South Delta and other interested parties.



Gray Davis  
GOVERNOR

STATE OF CALIFORNIA

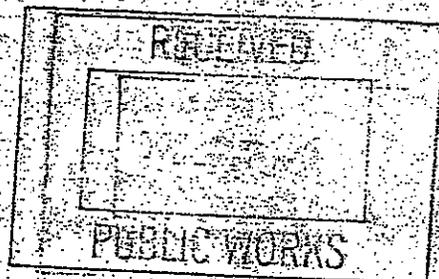
GOVERNOR'S OFFICE of PLANNING AND RESEARCH  
State Clearinghouse



Steven A. Nissen  
DIRECTOR

December 13, 2001

Steve Bayley  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376



Subject: Tracy Wastewater Treatment Plant Expansion Project  
SCH#: 2000012039

Dear Steve Bayley:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on December 12, 2001, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts  
Director, State Clearinghouse

Enclosures  
cc: Resources Agency

7-1

Document Details Report  
State Clearinghouse Data Base

**SCH#** 2000012039  
**Project Title** Tracy Wastewater Treatment Plant Expansion Project  
**Lead Agency** Tracy, City of

**Type** EIR - Draft EIR

**Description:** The project involves increasing the wastewater treatment capacity of the existing wastewater treatment plant to correspond with projected population growth in the City of Tracy. Increase plant capacity would be made possible by installing additional treatment facilities on unused portions of the existing site. A new effluent conveyance pipeline and outfall to Old River is also proposed as part of the expansion. In addition to an increased wastewater flow capacity, the plant would be upgraded in anticipation of more stringent effluent discharge requirements.

**Lead Agency Contact**

**Name** Steve Bayley  
**Agency** City of Tracy  
**Phone** 209-831-4420  
**Fax**  
**email**  
**Address** 520 Tracy Boulevard  
**City** Tracy **State** CA **Zip** 95376

**Project Location**

**County** San Joaquin  
**City** Tracy  
**Region**  
**Cross Streets** Holly Drive / Larch Road  
**Parcel No.**  

Township	Range	Section	Base
			Tracy

**Proximity to:**

**Highways** 205, 580  
**Airports**  
**Railways** Union Pacific  
**Waterways** Old River  
**Schools**  
**Land Use** Present Land Use: Wastewater treatment plant  
General Plan: Public Facilities

**Project Issues:** Air Quality; Archaeologic-Historic; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Sewer Capacity; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

**Reviewing Agencies:** Resources Agency; Department of Fish and Game, Region 2; Delta Protection Commission; Office of Historic Preservation; Department of Parks and Recreation; Reclamation Board; San Francisco Bay Conservation and Development Commission; Department of Water Resources; Caltrans, District 10; Department of Health Services; State Water Resources Control Board, Clean Water Program; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Bd., Region 5 (Sacramento); Native American Heritage Commission; State Lands Commission

**Date Received** 10/22/2001 **Start of Review** 10/22/2001 **End of Review** 12/12/2001

**2.0 COMMENTS AND RESPONSES**

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**LETTER 7**

Governor's Office of Planning and Research, State Clearinghouse

December 13, 2001

Terry Roberts, Director, State Clearinghouse

**Response to Comment 7-1**

*Commentor, the State Clearinghouse, states that the proposed Draft EIR has been circulated to appropriate agencies for review.*

No further response is necessary.

LETTER 8



Gray Davis  
GOVERNOR

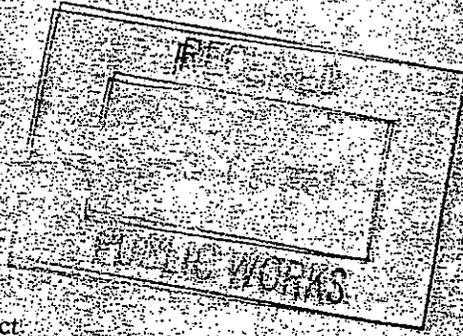
STATE OF CALIFORNIA  
GOVERNOR'S OFFICE of PLANNING AND RESEARCH  
State Clearinghouse



Steven A. Nissen  
DIRECTOR

December 14, 2001

Steve Bayley  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376



Subject: Tracy Wastewater Treatment Plant Expansion Project  
SCH#: 2000012039

Dear Steve Bayley:

The enclosed comment(s) on your Draft EIR was (were) received by the State Clearinghouse after the end of the state review period, which closed on December 12, 2001. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project.

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the ten-digit State Clearinghouse number (2000012039) when contacting this office.

Sincerely,

Terry Roberts  
Senior Planner, State Clearinghouse

Enclosures  
cc: Resources Agency

8-1

## 2.0 COMMENTS AND RESPONSES

---

### LETTER 8

Governor's Office of Planning and Research, State Clearinghouse  
December 14, 2001  
Terry Roberts, Director, State Clearinghouse

### Response to Comment 8-1

*Commentor, the State Clearinghouse, acknowledges receipt of letter following the close of the comment period on December 12, 2001. The letter has been integrated into the collection of comment letters, the responses to which comprise the Final EIR.*

No further response is necessary.

LETTER 9

STATE OF CALIFORNIA

GOVERNOR'S OFFICE of PLANNING AND RESEARCH  
State Clearinghouse

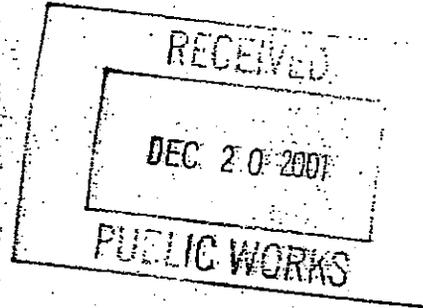


Gray Davis  
GOVERNOR



Steven A. Nissen  
DIRECTOR

December 17, 2001



Steve Bayley  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

Subject: Tracy Wastewater Treatment Plant Expansion Project  
SCH#: 2000012039

Dear Steve Bayley:

The enclosed comment (s) on your Draft EIR was (were) received by the State Clearinghouse after the end of the state review period, which closed on December 12, 2001. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project.

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the ten-digit State Clearinghouse number (2000012039) when contacting this office.

Sincerely,

Terry Roberts  
Senior Planner, State Clearinghouse

Enclosures  
cc: Resources Agency

9-1

**2.0 COMMENTS AND RESPONSES**

---

**LETTER 9**

Governor's Office of Planning and Research, State Clearinghouse  
December 17, 2001  
Terry Roberts, Director, State Clearinghouse

**Response to Comment 9-1**

*Commentor, the State Clearinghouse, acknowledges receipt of letter following the close of the comment period on December 12, 2001. The letter has been integrated into the collection of comment letters, the responses to which comprise the Final EIR.*

No further response is necessary.

# State Water Resources Control Board

## Division of Clean Water Programs

1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707

Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120

Internet Address: <http://www.swrcb.ca.gov>

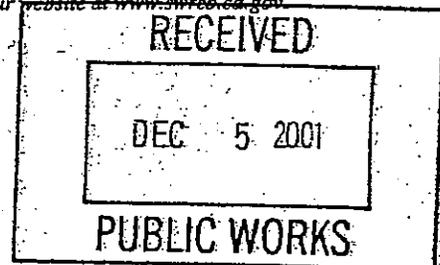


Gray Davis  
Governor

Winston H. Hickox  
Secretary for  
Environmental  
Protection

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at [www.swrcb.ca.gov](http://www.swrcb.ca.gov).*

DEC - 4 2001



Mr. Steve Bayley  
Deputy Director of Public Works  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

Dear Mr. Bayley:

**DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR CITY OF TRACY (CITY)  
TRACY WASTEWATER TREATMENT PLANT EXPANSION — STATE  
CLEARINGHOUSE NO. 2000012039**

Thank you for the opportunity to review the above document. We understand that the City will be seeking an SRF loan from the State Water Resources Control Board (SWRCB), Division of Clean Water Programs (Division) to assist in financing the proposed project.

Thank you for following the *Environmental Review Guidelines* developed for SRF loan projects. Although we do not have any specific comments pertaining to the draft EIR, we would like to list several procedural items and SRF loan program requirements for your information.

1. Projects eligible for SRF funding are placed on the Statewide Project Priority List. Contact Mr. Christopher Stevens at (916) 341-5698 regarding placement of your project on the SRF Priority List.
2. As a funding agency, the SWRCB will be a responsible agency pursuant to the California Environmental Quality Act (CEQA) and must consider the information in the environmental document prepared for the project when deciding whether to approve funding for the proposed project.
3. While CEQA itself does not require formal public hearings during the environmental review process, at least one hearing is required for an SRF loan project. Notices need to be distributed at least 30 days in advance, or at least 14 days in advance if a Notice of Availability was distributed 30 days in advance of the public hearing. For an SRF loan, please send a copy of the notices to the Division.
4. SRF projects must comply with federal laws pertaining to cultural resources, particularly Section 106 of the National Historic Preservation Act. Please contact our Cultural Resources Officer, Ms. Cookie Hirn, at (916) 341-5690 to initiate the Section 106 process and provide all background documentation of your cultural resources survey and assessment in the project's Area of Potential Effects. Additional submittals may be required to document resource significance and/or project effects.

10-1

When adequate information has been submitted, Ms. Hirn will review it for Section 106 compliance and will forward approved documents to the State Historic Preservation Office for their concurrence.

- 5. The Division is required to consult directly with federal agencies responsible for implementing federal environmental laws and regulations for projects that involve an SRF loan, since it is partially funded by the U.S. Environmental Protection Agency. Accordingly, please provide the Division with eight copies of your draft EIR and we will begin the distribution process to applicable federal agencies for a 45-day review period plus six days mailing time. We will send you copies of any comments we receive during the review period for your response. It is important to note SRF loan projects are subject to provisions of the Federal Endangered Species Act and must obtain a Section 7 clearance from the U.S. Fish and Wildlife Services prior to loan commitment.
- 6. At the conclusion of the review period, please provide us with a copy of: (1) the Final EIR, (2) the resolution certifying the EIR and making CEQA findings, including the required Statement of Overriding Considerations for identified significant and unavoidable environmental impacts, (3) all comments received during the review period and your responses to those comments, (4) the adopted mitigation monitoring plan, and (5) the Notice of Determination filed with the Governor's Office of Planning and Research, when they become available.

10-1

If you have any questions regarding the environmental review of this project, please contact me at (916) 341-5667.

Sincerely,

Patricia Gouveia  
Environmental Services Unit

cc: Mr. Bill Croyle  
Central Valley Regional Water  
Quality Control Board  
3443 Routier Road  
Sacramento, CA 95827-3098

State Clearinghouse  
P.O. Box 3044  
Sacramento, CA 95812-3044

**LETTER 10**

State Water Resources Control Board  
December 4, 2001  
Patricia Gouveia, Environmental Services Unit

**Response to Comment 10-1**

*SRF Loan Program Requirements.*

The procedural items and SRF loan program requirements listed in the letter from the State Water Resources Control Board have been noted. The City has, and will continue to, comply with these requirements. A public hearing on the Draft EIR was held on December 4, 2001. A public hearing on the Final EIR is expected to be held during Fall 2002. The required Section 106 analyses were completed as part of the Draft EIR. (See Section 4.9 of the Draft EIR) The requested number of copies of the Draft EIR were provided to the Division of Clean Water Programs. The Final EIR and related CEQA documentation will be provided to the Division of Clean Water Programs when the environmental review period is concluded.



THOMAS R. FLINN  
INTERIM DIRECTOR

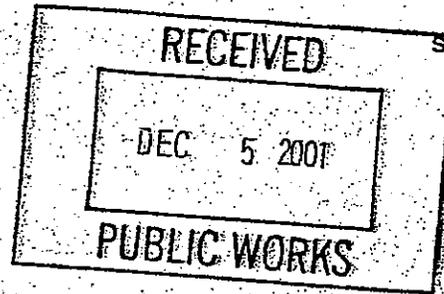
**COUNTY OF SAN JOAQUIN**

DEPARTMENT OF PUBLIC WORKS

P. O. BOX 1810 - 1810 E. HAZELTON AVENUE  
STOCKTON, CALIFORNIA 95201  
(209) 468-3000  
FAX (209) 468-2999

THOMAS M. GAU  
DEPUTY DIRECTOR

MANUEL SOLORIO  
INTERIM DEPUTY DIRECTOR



STEVEN WINKLER  
DEPUTY DIRECTOR

November 30, 2001

Mr. Steve Bayley  
Deputy Director of Public Works  
520 Tracy Boulevard  
Tracy, CA 95376

**SUBJECT: TRACY WASTEWATER TREATMENT PLANT EXPANSION**

Dear Mr. Bayley:

The San Joaquin County Department of Public Works has reviewed the environmental document for the above referenced project and our concerns, recommendations, corrections are as follows:

Section 3.0 Project description number 3.9:

Discretionary actions, permits and approvals

The list shall include the State Reclamation Board permit for work on the following channels:

- a. Old River
- b. Tom Paine Slough
- c. Paradise Cut.

The County's Solid Waste Division requires the applicant to complete the County's "Construction & Demolition Debris Waste Diversion Plan" and the "Solid Waste Operations Plan". These plans address the quantities of both solid and hazardous wastes generated during the construction phase, the amount and types of materials to be recycled, reused or disposed, and the projected waste generation when the project becomes operational. The completed forms shall serve as the applicant's Solid Waste Management Plan. Forms may be requested from:

Alison Hudson,  
Solid Waste Division,  
San Joaquin County Public Works,  
P.O. Box 1810,  
Stockton, CA 95201  
209-468-3066

11-1

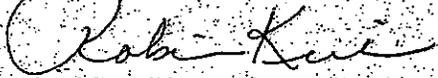
11-2

Further, as required in the San Joaquin County's Ordinance Code, Chapter 9-1160, the applicant shall provide a narrative response to the "Requirements for Collection and Recycling" and the location and space for recycling bins. Verification must be obtained from the Solid Waste Division on the adequacy of the plan.

11-2

Thank you for the opportunity to be heard. Should you have questions or need additional information regarding the above comments, please contact Robin Kirk, Environmental Coordinator at (209) 468-3085.

Sincerely,



Robin Kirk  
Environmental Coordinator

## 2.0 COMMENTS AND RESPONSES

---

### LETTER 11

County of San Joaquin, Department of Public Works

November 30, 2001

Robin Kirk, Environmental Coordinator

### Response to Comment 11-1

*List of Channels requiring permits.*

*The Commentor identifies three channels that may potentially require permits from the State Reclamation Board. Accordingly, the State Reclamation Board is a responsible permitting agency for the project:*

Refer to Response to Comment 5a-1.

### Response to Comment 11-2

*Commentor notes that the project will be required to complete the County's "Construction & Demolition Debris Waste Diversion Plan" and the "Solid Waste Operations Plan."*

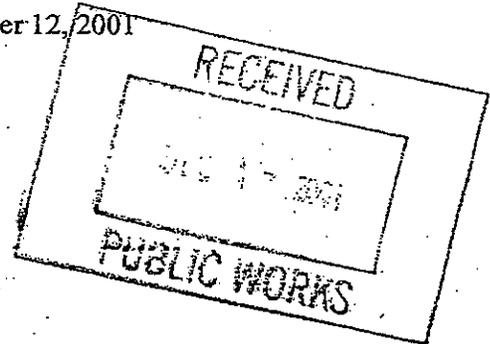
All construction projects taking place in the County of San Joaquin are required to comply with the plan as part of the County's efforts to comply with State mandated waste diversion requirements. Although the project may need to complete the Construction & Demolition Debris Waste Diversion Plan, the City has determined that the proposed project would not generate substantial construction or demolition-related debris, and would not result in a substantial increase in solid waste generated from routine activities, as only a few new employees would be hired to operate and maintain the expanded facility. Rather, the City identified the generation of biosolids as the waste issue that necessitated the most comprehensive discussion within the Draft EIR. Accordingly, the Draft EIR focuses upon the impacts associated with the generation of biosolids.



SAN JOAQUIN COUNTY  
COMMUNITY DEVELOPMENT DEPARTMENT

1810 E. HAZELTON AVE., STOCKTON, CA 95205-6232  
PHONE: 209/468-3121 FAX: 209/468-3163

December 12, 2001



City of Tracy  
Public Works Department  
Attn: Steve Bayley, Deputy Director  
520 Tracy Boulevard  
Tracy, CA 95376

Re: Tracy Wastewater Treatment Plant Expansion, Draft EIR

Dear Mr. Bayley:

Thank you for the opportunity to review the above Draft Environmental Impact Report.

**3.9 Discretionary Actions, Permits and Approvals (p. 3-26):** The San Joaquin County Community Development Department has jurisdiction where the proposed outfall pipeline traverses private property outside the city limits. The area between Delta Ave. and Paradise Cut, where the outfall pipeline leaves Delta Avenue and heads north, is zoned AG-40 (General Agriculture). The Lathrop City/San Joaquin County line bisects Paradise Cut and Old River such that the north half of Old River and the south half of Paradise Cut are in the County and zoned AG-40. The outfall pipeline and outfall discharge have a use classification of "Utility Services-Major" and may be conditionally permitted in the AG-40 zone with an approved Site Approval application.

If you have any questions, you may call me at (209) 468-3144.

Sincerely,

Chandler Martin  
Senior Planner

CM/vb  
Tracywastewater@deir

12-1

## 2.0 COMMENTS AND RESPONSES

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### LETTER 12

San Joaquin County Community Development Department  
December 12, 2001  
Chandler Martin, Senior Planner

#### Response to Comment 12-1

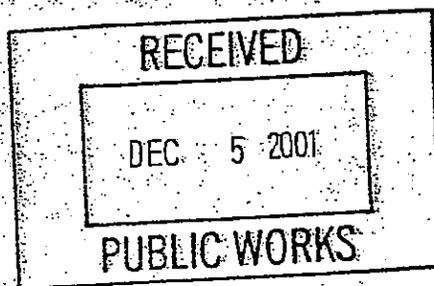
*Commentor notes that the proposed outfall pipeline and outfall discharge are conditionally permitted uses in San Joaquin County with an approved Site Approval application.*

See Response to Comment 16-9. The comment does not address the adequacy of the document. No further response is necessary.



December 4, 2001

Mr. Steve Bayley  
Deputy Director of Public Works  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376



**Subject: Draft Environmental Impact Report for the City of Tracy Wastewater Treatment Plant Expansion**

Dear Mr. Bayley:

The California Urban Water Agencies (CUWA) appreciates the opportunity to provide comments on the Draft Environmental Impact Report (EIR) for the City of Tracy (City) Wastewater Treatment Plant Expansion. We were pleased to find that many of the comments we submitted on the Notice of Preparation were incorporated into the draft EIR.

#### General Comments

We are pleased that the City selected tertiary treatment, including filtration and disinfection of all wastewater discharged to Old River as the preferred alternative. However, the proposed project will still have an impact on Delta water quality that is not fully acknowledged in the draft EIR. Increases in total dissolved solids (TDS), organic carbon (TOC), pathogens, and other contaminants will impact the quality of water diverted or exported from the Delta by CUWA's member agencies. The increase in pollutant concentrations makes it more costly and difficult for CUWA's member agencies to treat this water to meet state and federal drinking water standards. Metropolitan Water District of Southern California (MWDSC) has estimated that each 1 mg/L increase in TDS in Delta supplies results in a cost of \$300,000 in their service area (Salinity Management Study, June 1999, sponsored by Metropolitan Water District of Southern California and the U.S. Bureau of Reclamation). The draft EIR estimated the increase in TDS at the Tracy Pumping Plant would be 10 mg/L and the increase at Contra Costa Water District's (CCWD) Old River intake would be 3 mg/L, but did not provide an estimate for the increase at the Banks Pumping Plant or the blend of water from the California Aqueduct and Delta Mendota Canal at O'Neill Forebay and San Luis Reservoir. We request that the final EIR include an analysis of TDS concentration increases at Banks and at O'Neill Forebay and San Luis Reservoir as a result of the proposed project. The increased TDS would result in substantial costs to water agencies. The California Environmental Quality Act (CEQA) requires that mitigation measures be identified that will address the impacts on drinking water quality as a result of the wastewater treatment plant expansion. The additional costs to treat the water should not be borne by the drinking water agencies.

13-1

13-2

The cumulative impacts analysis of the draft EIR is inadequate because it does not include an analysis of the impacts of many constituents of concern to drinking water agencies. The draft EIR concludes that the "cumulative future impacts may be **potentially significant** for one or several 303 (d)-listed pollutants." Many of the constituents of concern to drinking water agencies (TOC, pathogens) are not included on the 303 (d) list. These issues will be addressed in the Drinking Water Policy that will be developed by the California Regional Water Quality Control Board, Central Valley Region (Regional Board). This policy will eventually result in water quality objectives for constituents of concern to drinking water agencies. Implementation plans and perhaps, effluent limitations, will then be established for these constituents. In the meantime, the cumulative impacts analysis of the draft EIR must address the potential increase in drinking water constituents in Delta water supplies. We believe that the City must mitigate the increased loading of water quality contaminants to ensure full protection of public health without increasing the cost of water utility operations.

13-3

### Specific Comments

Page 4.6-7 - The Regional Board has conducted extensive modeling on the sources of TDS to the San Joaquin River. The reference to the 1995 Brown and Caldwell study is outdated due to the extensive changes that have been made in the Mud and Salt Slough area as a result of the Grasslands Bypass Project.

Page 4.6-9 - Disinfection byproducts (DBPs) are of concern when produced in water treatment, not wastewater treatment. The draft EIR implies that trihalomethanes (THMs) are the only DBPs that are formed. There are many DBPs formed upon chlorination, including THMs and haloacetic acids. When ozone is used as a disinfectant, the formation of bromate is of considerable concern due to the concentrations of bromide in Delta water supplies.

Page 4.6-9 - TOC and dissolved organic carbon (DOC) come from many sources in Delta water supplies, not just algae and plants, as described in the draft EIR. Other major sources include agricultural drainage, wastewater discharges, and storm water runoff.

13-4

Page 4.6-29 - The discussion of water diversions/exports in the Delta is not correct. Water is exported at the Barker Slough Pumping Plant in the north Delta to serve the North Bay Aqueduct Contractors. Water is diverted at the Banks Pumping Plant to serve the South Bay Aqueduct Contractors and many other Contractors in Southern California and the Central Coast. In addition, water diverted at the Tracy Pumping Plant commingles with State Water Project water diverted at the Banks Pumping Plant in O'Neill Forebay and San Luis Reservoir. The City of Tracy's water supply currently comes from the Delta Mendota Canal just downstream from the Tracy Pumping Plant. The draft EIR does not address the impacts of this project on Tracy's drinking water quality.

Table 4.6-17 - Data on TOC and DOC should be added to this table.

Page 4.6-43 - References or supporting data must be provided for the statements on pathogen removal in wastewater treatment processes.

Page 4.6-46 – What is the basis for the assumed 10 mg/L TOC concentration in the effluent?

Page 4.6-46 – What is the basis for the statement that effluent pathogens will be lower than levels in ambient waters? Did Tracy conduct pathogen monitoring on Old River?

Page 4.6-54 – Storm water runoff typically contains high concentrations of organic carbon, bacteria, and pathogens. The data on the quality of storm water runoff from Tracy should be provided.

Page 6-4 – Several water quality constituent concentrations will not be reduced by the Preferred Alternative (e.g. TDS) so the loading of these constituents will increase substantially with the Preferred Alternative. It is therefore incorrect to state that the No Project Alternative would result in higher concentrations of pollutants than the Preferred Alternative.

CUWA requests that our comments be addressed in the Final EIR on this project. Please call me if you have any questions or would like to discuss our comments.

Sincerely,



Walt Pettit  
Executive Director

## 2.0 COMMENTS AND RESPONSES

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### LETTER 13

California Urban Water Agencies  
December 4, 2001  
Walt Pettit, Executive Director

#### Response to Comment 13-1

*The commentor raises concerns regarding the proposed project's impacts upon water quality, in particular upon TDS concentration levels at Banks Pumping Plant, O'Neill Forebay and San Luis Reservoir. Commentor requests that an analysis of TDS increases at the Banks Pumping Plant, O'Neill Forebay, and San Luis Reservoir be performed.*

The City appreciates the commentor's concern regarding regional TDS levels. As described in Master Response Section A(3)(a) the City determined that the proposed project's impacts upon TDS concentrations are less than significant. Nonetheless, to address long term regional environmental goals that go beyond the minimum standards required by CEQA, the City has committed to decreasing the TDS concentrations in the source water for the proposed project such that the proposed project will maintain the current permitted amount (lbs/day) of TDS in the effluent. The decrease in effluent concentration will beneficially affect the receiving waters, including the Banks Pumping Plant, O'Neill Forebay and San Luis Reservoir. Please see Master Response Section A(3) for further discussion of the proposed project's impacts upon TDS and other water quality parameters.

#### Response to Comment 13-2

*Commentor raises concerns regarding increased costs to drinking water agencies.*

See Master Response Sections A(3) and B for a discussion of the proposed project's impacts upon water quality and Response to Comment 6-4 for a discussion regarding the level of TOC in the proposed project's discharge as it relates to impacts upon drinking water purveyors.

#### Response to Comment 13-3

*Commentor asserts that the cumulative impact analysis is inadequate because it does not include an analysis of the impacts of non-303(d)-listed drinking water constituents of concern, (e.g. TOC, pathogens) and that the City must mitigate the increased loading of water quality contaminants.*

See Master Response Section 2.(B) for a discussion of the cumulative impacts upon a variety of water quality constituents, including non-303(d) listed constituents of concern (finding no significant individual or cumulative impact for TOC and coliform). See Master Response A for a discussion of mitigation measures related to constituents for which increased loading was specifically identified as a concern (e.g. TDS).

**Response to Comment 13-4**

*Commentor states that the references on page 4.6-7 of the Draft EIR to the 1995 Brown and Caldwell study is outdated due to the extensive changes that have been made in the Mud and Salt Slough area as result of Grasslands Bypass Project.*

Comment noted. This information was provided in the setting portion of Section 4.6 (Surface Hydrology, Groundwater and Water Quality) of the Draft EIR and was not specifically used in the water quality impact analysis. Please see Master Response Section A(1) for a discussion of the data and methodology that provided the basis for the City's analysis of the proposed project's impacts.

*With regard to page 4.6-9 of the Draft EIR, commentor states that disinfection by-product (DBP) formation is of concern in water treatment rather than wastewater treatment. Commentor notes that DBPs formed in water treatment include THMs and haloacetic acids, as well as bromate if the water treatment uses ozonation.*

Comment noted.

*With regard to page 4.6-9 of the Draft EIR, commentor correctly notes that total organic carbon (TOC) and dissolved organic carbon (DOC) comes from many sources in addition to algae and plants, including agricultural drainage, wastewater discharges, and storm runoff.*

Comment noted.

*With regard to page 4.6-29 of the Draft EIR, commentor states that the discussion of water diversions/exports in the Draft EIR is not correct and that the Draft EIR should address the impacts of the proposed project on Tracy's drinking water quality, specifically on the Delta Mendota Canal.*

See Master Response **Table 2-4** and Section A, for a discussion of the proposed project's impacts upon the City's drinking water quality, including the DMC (comparing projected effluent concentration to drinking water standards). In addition, the only difference between the commentor and the City's description of water diversions/exports is the commentor refers to Banks Pumping Plant and the City refers to Clifton Court Forebay. This distinction is one without difference, as the intake to Banks Pumping Plant is connected to the Clifton Court Forebay; thus the impacts already identified by the City at the Clifton Court Forebay address commentor's concerns at the Banks Pumping Plant. As stated in the Draft EIR, and as further described in the Master Responses, the impacts of the proposed tertiary treated effluent discharge on water quality at these locations, and therefore on the City's drinking water supply, are not significant.

*Commentor requests that TOC and DOC be added to Table 4.6-17.*

TOC concentration (both current and projected) has been incorporated Master Response **Tables 2-3, 2-4** and **2-13**. It is anticipated that a high percentage of TOC will be present as DOC, since the particulate content of the tertiary treated effluent will be low (TSS less than 5 mg/l)..

## 2.0 COMMENTS AND RESPONSES

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*Commentor requests references or data to support the statements on page 4.6-43 regarding pathogen removal in wastewater treatment processes.*

The proposed tertiary treatment process will achieve median turbidity levels of 2 nephelometric turbidity units (NTU) and median total coliform bacteria levels of less than 2.2 MPN per 100 ml. See, e.g., Pomona Virus Study (1977). The Department of Health Services has certified that effluent from the direct filtration treatment process proposed for the City is suitable for use in unrestricted recreational impoundments under Title 22 of the California Code of Regulations, provided certain criteria are met. David Spath of the Department of Health Services, Head of the Sanitary Engineering Branch, has termed water complying with these Title 22 Unrestricted Reuse criteria as "virtually pathogen free," meaning there are not sufficient pathogens present in the treated water to generate a response (infection) in humans when exposed to the water directly (personal communication with John Gaston, CH2M HILL, March 2002). Furthermore, in a study by Casson, Sorber, Sykora, Gavaghan, Shapiro, and Jakubowski (Journal WPCF, Volume 62, Number 5, July/August, 1990), it was reported that *Giardia lamblia* was effectively removed to low levels in a California wastewater treatment plant consisting of biological secondary treatment followed by filtration.

*Commentor requests a basis for the statement on page 4.6-46 of the Draft EIR that the TOC concentration will be 10 mg/l.*

The maximum concentration value for TOC in the effluent from the proposed tertiary facility is based on the professional judgment by the design engineers for the proposed project [CH2M Hill]. The City of Tracy has collected TOC data on the existing secondary effluent. Average TOC levels range from 14 to 16 mg/l. With tertiary filters, a 50 percent reduction of TOC to 7.5 mg/l on average is anticipated; a maximum value of 10 mg/l is estimated to account for the variability above the average, which is projected to be small for high quality, tertiary treated effluent.

*Commentor requests the basis for the statement on page 4.6-46 of the Draft EIR that effluent pathogens will be lower than levels in ambient waters. Commentor asks whether Tracy performed pathogen monitoring in Old River.*

Monitoring for fecal coliform is used as an indicator of pathogen removal. As noted in Appendix F of the Draft EIR, fecal coliform data in the South Delta indicates that median levels range from 12 to 32 MPN/100 ml, while 90<sup>th</sup> percentile values range from 50 to 364 MPN/100 ml. This data was obtained from the DWR Municipal Water Quality Investigations group from the period 1996 to 1997. Levels of total coliform in the tertiary treated effluent discharged from the proposed project will be less than 2.2 MPN/100 ml as a median and less than 23 MPN/100 ml, as a maximum. Fecal coliform levels in the proposed effluent would be less than the total concentration.

*With regard to page 4.6-54 of the Draft EIR, commentor requests data on the quality of stormwater runoff from Tracy. Commentor states that stormwater runoff typically contains high levels of organic carbon, bacteria, and pathogens.*

## 2.0 COMMENTS AND RESPONSES

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The proposed project does not involve collection, treatment, or discharge of municipal stormwater. The stormwater collected onsite will be collected and treated at the WWTP. Further analysis of stormwater runoff is not relevant to determine the potential impacts of the proposed project, as receiving water data already reflect the contribution of constituents from stormwater runoff.

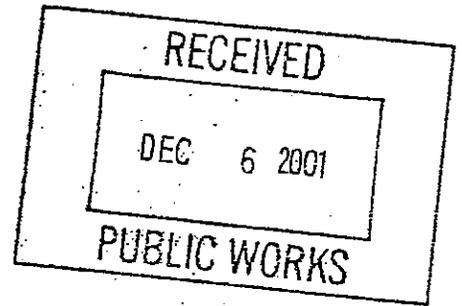
*With regard to page 6-4 of the Draft EIR, commentor notes that several water quality parameters, e.g. TDS, will not be reduced by the Preferred Alternative. Commentor notes that it is incorrect to state that the No Project Alternative will result in higher concentrations of pollutants than the Preferred Alternative.*

The City appreciates the commentor's concern regarding regional TDS levels; however, as described in Master Response Section A(2)(a) the City determined the proposed project's impacts upon TDS concentrations are less than significant. Nonetheless, to address long-term regional environmental goals that go beyond the minimum standards required by CEQA, the City has committed to decreasing the TDS concentrations in the source water for the proposed project such that the proposed project will maintain the current permitted amount (lbs/day) of TDS. By doing so, the concentration of TDS will be reduced in the effluent discharged, and therefore, a slight reduction in the receiving water is also expected. Please see Master Response Section A(2) for a discussion of the proposed project's impacts upon other water quality parameters.



**CONTRA COSTA  
WATER DISTRICT**

1331 Concord Avenue  
P.O. Box H20  
Concord, CA 94524  
(925) 688-8000 FAX (925) 688-8122



December 3, 2001

**Directors:**  
James Pretti  
President

Noble O. Elcenko, D.C.  
Vice President

Elizabeth R. Anello  
Bette Boatman  
Joseph L. Campbell

Walter J. Bishop  
General Manager

Mr. Steve Bayley, Deputy Director of Public Works  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

**Subject: Draft Environmental Impact Report for the City of Tracy Wastewater Treatment Plant Expansion**

Dear Mr. Bayley:

The Contra Costa Water District (CCWD or District) appreciates the opportunity to comment on the Draft Environmental Impact Report (Draft EIR) for the City of Tracy Wastewater Treatment Plant Expansion (Expansion), dated October 2001. CCWD also contributed to and supports the comments submitted by the California Urban Water Agencies.

The District's primary concern with the proposed Expansion as described in the Draft EIR is that it fails to adequately address and mitigate potential impacts on water quality in the Delta. Increases in salt, organic carbon, pathogens, and other pollutant loads in the Delta adversely impact the water quality and water supply of CCWD and other urban agencies that divert or export water from the Delta. The resulting increase in pollutant concentrations at these intakes makes it more difficult and costly for urban water agencies to meet state and federal drinking water standards. CCWD recognizes the need for the City of Tracy to accommodate anticipated growth within the city; however, the City's wastewater disposal plans must not result in externalized costs to drinking water utilities or overall degradation of the quality of drinking water supplies diverted from the Sacramento-San Joaquin Delta. These concerns are discussed in detail in the District's February 8, 2000 comment letter on the Notice of Preparation of the Draft EIR.

The District finds that the Draft EIR is inadequate and fails to meet the requirements of the California Environmental Quality Act (CEQA). Specifically, the Draft EIR fails to acknowledge the significant water quality impacts of the Expansion due to increases in total dissolved solids (TDS), organic carbon, and pathogens at Delta drinking water intakes. The Draft EIR fails to provide adequate mitigation measures to avoid injury to beneficial uses of legal water rights holders of the Delta water.

Mr. Steve Bayley – CCWD Comments on Draft EIR

City of Tracy

December 3, 2001

Page 2

Injury will result from the Expansion as a stand-alone project and cumulatively with other foreseeable projects in the Central Valley.

The Draft EIR estimates that the Expansion will increase TDS at the CCWD Old River intake by approximately 3 mg/L. At the CVP pumps, the estimated increase about 10 mg/L.<sup>1</sup> The Draft EIR erroneously dismisses these impacts as "not measurable" and "less than significant". In effect, the Draft EIR fails to recognize that the increase in high salinity wastewater discharge will lead to an additional salt load of 29 tons per day or 10,700 tons per year into the Old River.<sup>2</sup> This significant salt load will lead to a corresponding increase in salinity at drinking water intakes in south Delta.

Even a small increase in salinity can have significant impacts on the quality of water delivered to the customers of CCWD and the performance of CCWD's Los Vaqueros Project. This salinity increase is a significant adverse impact on CCWD and the 450,000 Californians receiving drinking water from CCWD. This salinity impact is not limited to CCWD. It also injures other legal users of Delta water. For example, the high salinity water at Tracy Pumping Plant will eventually enter San Luis Reservoir and commingle with water exported from Banks Pumping Plant. This leads to salinity increase in the Delta water supply of the Metropolitan Water District of Southern California (MWDSC). MWDSC estimates that a 1 mg/l TDS increase in its Delta water supply will lead to an annual incremental cost of \$300,000.<sup>3</sup>

In considering the cumulative impacts of the Expansion and other foreseeable projects, the Draft EIR states that cumulative impacts to the concentrations of several contaminants listed on EPA's 303(d) list may be potentially significant. The Draft EIR concludes that "If they occurred, these potentially significant impacts would be largely the result of a failure of a federal, state and local effort in TMDLs to achieve the success that is mandated under the Clean Water Act." While the City of Tracy's desire that the TMDL effort be successful is laudable, it does not absolve the city of a responsibility to minimize its own significant contribution to pollutant loads in the Delta. CEQA requires a project proponent to mitigate its own project impacts and not hide behind the cumulative impacts of other projects.

The section of the Old River impacted by the proposed discharge frequently exceeds

<sup>1</sup> These increases appear to be large for the characteristics of the discharge.

<sup>2</sup> Based on an additional 7 MGD discharge of wastewater at 1,000 mg/L TDS.

<sup>3</sup> Based on estimate from MWD *Salinity Management Study* (1998) as reported in the California Urban Water Agencies report *Recommended Salinity Targets and Program Actions for the CALFED Water Quality Program* (December 1999) of a \$45 million per year incremental economic impact of an increase in TDS concentration in SWP supply from 150mg/L to 300 mg/L. [p 44.]

14-1

14-2

14-3

**LETTER 14**

Contra Costa Water District  
December 3, 2001  
Richard A. Denton, Water Resources Manager

**Response to Comment 14-1**

*Commentor states that the Draft EIR fails to address and mitigate impacts of increased load of salt, organic carbon, pathogens and other pollutants. Commentor asserts that the increases in pollutant loads adversely impact the water quality and water supply of CCWD and other urban agencies that divert or export water from the Delta.*

The City appreciates the commentor's concern regarding potential impacts on water quality in the Delta; however, commentor's assertion demonstrates a misunderstanding of the proposed project's impacts. As described in Master Response Section A, the proposed project will not result in an increased concentration or mass in the City's discharge of TDS, organic carbon, pathogens, and many other constituents (*i.e.*, ammonia). Thus, the proposed project should in no way make it more difficult or costly for urban water agencies to meet state and federal drinking water standards. In addition, because the proposed project will not result in increased levels of the above-named constituents, the findings and conclusions set forth in the Draft EIR and Master Responses meets the requirements of CEQA.

**Response to Comment 14-2**

*Commentor asserts that the Draft EIR fails to acknowledge significant water quality impacts associated with increases in TDS. Commentor states that the Draft EIR fails to acknowledge an additional salt load of 29 tons per day to Old River from the proposed project.*

As explained in Master Response Section A(2)(a) and Response to Comment 14-1, the proposed project will actually decrease TDS concentration in the effluent and thus, will minimally decrease the concentration in the receiving waters, including the Tracy Pumping Plant and the San Luis Reservoir.

**Response to Comment 14-3**

*Commentor asserts that the City has a responsibility to minimize its contribution to pollutant loads in the Delta and should not assume that TMDLs will resolve water quality problems.*

See Master Response Section 2.B for a discussion of the proposed project's cumulative impacts.

**Response to Comment 14-4**

*Commentor expresses support for the maximum summertime reuse of recycled water alternative. Comment noted.*

# DeltaKeeper

A PROJECT OF SAN FRANCISCO BAYKEEPER

6 December 2001

Mr. Steve Bayley, Deputy Director of Public Works  
City of Tracy, Public Works Department  
520 Tracy Boulevard  
Tracy, CA 95376

Via Fax: Hardcopy to Follow

Re: Tracy Wastewater Treatment Plant Expansion DEIR

Dear Mr. Bayley:

On behalf of DeltaKeeper, WaterKeepers Northern California and the California Sportfishing Protection Alliance (hereinafter DeltaKeeper), thank you for this opportunity to comment on the Tracy Wastewater Treatment Plant Expansion Draft Environmental Impact Report (SCH#2000012039). We incorporated by reference the comments of the Sierra Club, the Central Valley Regional Water Quality Control Board and South Delta Water Agency. The DEIR is grievously deficient because it fails to adequately identify and mitigate fishery and water quality impacts.

The United States Geological Survey in its 1992-95 study of the San Joaquin River Basin conducted, as part of the National Water Quality Assessment, concluded that the Basin was one of the most degraded basins in the nation. The San Joaquin River, Old River and the Sacramento-San Joaquin Delta (Delta) are listed as "Impaired Waterbodies," under provisions of the federal Clean Water Act; identified as "Toxic Hot Spots," pursuant to the Bay Protection and Toxic Hot Spot Cleanup Program and designated as critical habitat and migration corridors for species protected under federal and state endangered species acts.

The DEIR ignores crucial data and employs flawed modeling and unreasonable assumptions in a disingenuous attempt to weave an artificially reality to deny that the project will have any adverse effects on water quality or aquatic life. The blunt fact is that the discharge of millions of gallons of wastewater a day into an already seriously polluted river will have significant adverse impacts. To pretend otherwise is to deny scientific reality, empirical observation and common sense.

Any increase in the mass loading or concentration of pollutants identified as already impairing beneficial uses would be a significant adverse effect requiring acknowledgement and mitigation. Contrary to the claims in the DEIR, the proposed project will increase concentration and mass loading of pollutants and further degrade the South Delta. This DEIR and proposed project is

DEIR Comments, Tracy Wastewater, 5 December 2001, Page 1.

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Telephone: 209 464 5090  
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15-1

15-2

2. The Proposed Project Does Not Comport With Federal Requirements Prohibiting New Sources Discharging To Impaired Waterbodies.

The federal Clean Water Act requires the development of a Total Maximum Daily Loading (TMDLs) for all waterbodies identified as impaired on the 303(d) list and for each pollutant identified as impairing those waterways. There is no remaining assimilative capacity in receiving waters for impairing pollutants. The TMDL process consists of quantifying the mass loading of pollutants impairing waterways, pinpointing responsible sources and subsequently achieving compliance by allocating load reductions to identified sources.

EPA regulations at 40 CFR 122.44(d) require, for all NPDES permits, including those being reissued, that effluent limitations be included to meet water quality standards and wasteload allocations. The regulations also provide (in part) at 40 CFR 122.4(l) that "No new permit may be issued to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards." New dischargers are defined at 40 CFR 122.2 as "any building, structure, facility, or installation:

- a. From which there is or may be a 'discharge of pollutants;'
- b. That did not commence the 'discharge of pollutants' at a particular 'site' prior to August 13, 1979;
- c. Which is not a 'new source;' and
- d. Which has never received a finally effective NPDES permit for discharges at that 'site.'

15-8

New Source is defined as "any building, structure, facility, or installation from which there is or may be a 'discharge of pollutants,' the construction of which commenced:

- a. After promulgation of standards of performance under section 306 of CWA which are applicable to such source; or
- b. After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal."

The regulations at 40 CFR 122.44(d)(l) provide that all permits must include "any requirements in addition to or more stringent than promulgated effluent limitation guidelines or standards (under other sections of the Clean Water Act) necessary to achieve water quality standards established under §303 of the Clean Water Act, including State narrative criteria for water quality."

Section 302(a) of the CWA requires that where a water quality permitting authority determines that "discharges of a pollutant from a point source...would interfere with the attainment or maintenance of (applicable) water quality standards, effluent limitations..shall be established which can reasonably be expected to contribute to the attainment or maintenance of such water quality."

loading -- guidance which is binding on the Central Valley Regional Water Quality Control Board. In Order No. WQ 90-5, the State Board directed the San Francisco Regional Board on the appropriate method for establishing mass-based limits which comply with the State and federal antidegradation policies. In that 1990 Order, considering a petition relating to the South San Francisco Bay sewage plants, the State Board articulated the following general principles:

In order to comply with the federal antidegradation policy, the mass loading limits should also be revised, based on mean loading, concurrently with adoption of revised effluent limits. The [mass] limits should be calculated by multiplying the [previous year's] annual mean effluent concentration by the [four previous year's] annual average flow.

Order No. WQ 90-5 at 78. The reason the State Board ordered the mass limit equation revised was to hold the South Bay plants to their actual performance so as not to violate the antidegradation policy.

The South Bay permits allow both an increase in the volume of the discharges, as well as an increase in the mass emissions of toxic pollutants over current levels. To illustrate, the actual 1989 mass emissions from the three treatment plants was 47,600 pounds per year (lbs/yr). Allowable mass emissions under the revised mass emission limits total 67,968 lb/yr. Thus, the permits allow a lowering of surface water quality below the highest levels achieved since 1975, and the federal [antidegradation] test must be applied. Likewise, State Board Resolution No. 68-16 is applicable.

15-9

Order No. WQ 90-5 at 73 (emphasis added). Hence, the State Board Order finds that any mass limit that fails to lock in the "highest levels achieved since 1975" must comply with the antidegradation policy.

The State Board articulates the appropriate equation which applies the last available annual mean concentration multiplied by the annual average flow over a prior four year period. See supra. The State Board Order reiterates that basic equation, stating: "In order to comply with the federal antidegradation, the mass loading limits should also be revised, based on mean loading, concurrently with adoption of revised effluent limits." Order at 78. Hence, if the proposed project is not proposing mass limits based on the current "mean loading", the project will be in violation of the antidegradation policy and the State Board previous Order. See also EPA Technical Support Document for Water Quality-Based Toxics Control at 110 (§ 5.7.1). Mass limits must be included in the permit consistent with the State Board guidance.

The San Joaquin River is listed on the 303(d) List of Impaired Waterbodies because of boron, selenium, electrical conductivity, chlorpyrifos, DDT, diazinon, group A pesticides and unknown toxicity. Delta waterways are listed because of mercury, low dissolved oxygen, electrical conductivity, chlorpyrifos, DDT, diazinon, group A pesticides and unknown toxicity.

By definition, any increase in the discharge of impairing pollutants to impaired waterways is a "significant" change requiring mitigation. Any new discharge that has a "reasonable potential," as defined in the federal regulations, to exceed a water quality objective is a significant change requiring mitigation.

The DEIR carefully selects a truncated data-set of ambient water quality measurements at "selected reference sites" in a transparent and dishonest effort to avoid having to admit that the project will have significant adverse impacts on water quality.

The DEIR employs median hardness values. This is highly improper. The median of 1, 3, and 100 is 3. Average and worst-case values must be used. EPA's California Toxic Rule (CTR), the State Implementation Plan for the CTR and EPA's Technical Support Document require use of a "worst case" hardness value in developing reasonable potential and computing numerical limits. The proposed project's outfall lies within the tidal prism of a severely impaired waterway that is identified critical habitat and a major migration corridor for endangered species. The outfall area is subject to multiple dosing because of tidal flow and reversed flows due to water exports. Clearly, a "worst-case" hardness value must be used.

a. Copper: The DWR monitoring at Vernalis (between 7/2/97 & 8/25/98) reveals a maximum dissolved copper concentration of 8 µg/l (Appendix B). Hardness was found to be as low as 32 mg/l (between 9/1/90 & 6/28/99). A copper concentration of 8 µg/l would exceed the one-hour acute aquatic life criteria even at a hardness of almost 60 mg/l and would exceed the four-day chronic criteria even at a hardness of more than 85 mg/l. The 25th percentile of copper was 5.0 µg/l and the 10th percentile of hardness was 53.8. Medians are improper for assessing "worst-case" impacts on aquatic species. It is, however, interesting to note that according to the DWR data, dissolved copper frequently exceeds criteria.

The DEIR claims that the projected effluent copper concentration will be an average of 5 µg/l with a minimum of 10 µg/l. Zinc effluent concentrations is projected to be 30 µg/l and 50 µg/l, respectively. Copper and zinc are additive in toxicity and copper toxicity increases with elevated temperatures and low dissolved oxygen levels, both of which exist in the South Delta. Stressful sublethal impacts to salmonids are documented in the literature at levels as low as 1.7 µg/l and avoidance can occur at concentrations as low as 0.1 µg/l. The DEIR is deficient for employing

Injury will result from the Expansion as a stand-alone project and cumulatively with other foreseeable projects in the Central Valley.

The Draft EIR estimates that the Expansion will increase TDS at the CCWD Old River intake by approximately 3 mg/L. At the CVP pumps, the estimated increase about 10 mg/L.<sup>1</sup> The Draft EIR erroneously dismisses these impacts as "not measurable" and "less than significant". In effect, the Draft EIR fails to recognize that the increase in high salinity wastewater discharge will lead to an additional salt load of 29 tons per day or 10,700 tons per year into the Old River.<sup>2</sup> This significant salt load will lead to a corresponding increase in salinity at drinking water intakes in south Delta.

Even a small increase in salinity can have significant impacts on the quality of water delivered to the customers of CCWD and the performance of CCWD's Los Vaqueros Project. This salinity increase is a significant adverse impact on CCWD and the 450,000 Californians receiving drinking water from CCWD. This salinity impact is not limited to CCWD. It also injures other legal users of Delta water. For example, the high salinity water at Tracy Pumping Plant will eventually enter San Luis Reservoir and commingle with water exported from Banks Pumping Plant. This leads to salinity increase in the Delta water supply of the Metropolitan Water District of Southern California (MWDSC). MWDSC estimates that a 1 mg/l TDS increase in its Delta water supply will lead to an annual incremental cost of \$300,000.<sup>3</sup>

In considering the cumulative impacts of the Expansion and other foreseeable projects, the Draft EIR states that cumulative impacts to the concentrations of several contaminants listed on EPA's 303(d) list may be potentially significant. The Draft EIR concludes that "If they occurred, these potentially significant impacts would be largely the result of a failure of a federal, state and local effort in TMDLs to achieve the success that is mandated under the Clean Water Act." While the City of Tracy's desire that the TMDL effort be successful is laudable, it does not absolve the city of a responsibility to minimize its own significant contribution to pollutant loads in the Delta. CEQA requires a project proponent to mitigate its own project impacts and not hide behind the cumulative impacts of other projects.

The section of the Old River impacted by the proposed discharge frequently exceeds

<sup>1</sup> These increases appear to be large for the characteristics of the discharge.

<sup>2</sup> Based on an additional 7 MGD discharge of wastewater at 1,000 mg/L TDS.

<sup>3</sup> Based on estimate from MWD *Salinity Management Study* (1998) as reported in the California Urban Water Agencies report *Recommended Salinity Targets and Program Actions for the CALFED Water Quality Program* (December 1999) of a \$45 million per year incremental economic impact of an increase in TDS concentration in SWP supply from 150mg/L to 300 mg/L. [p 44.]

14-1

14-2

14-3

Mr. Steve Bayley – CCWD Comments on Draft EIR  
City of Tracy  
December 3, 2001  
Page 3

the 1995 Water Quality Control Plan water quality objectives for salinity. The Expansion proposes to increase the pollutant load entering the Delta at Old River. An alternative that maximizes water reuse and minimizes the volume and pollutant loads discharged to Delta waterways should be selected. According to the Draft EIR, the "Maximum Summertime Reuse of Recycled Water" alternative results in less intense impacts on surface hydrology, groundwater, and water quality than the proposed project. This alternative must be reconsidered and further developed, and the Revised Draft EIR recirculated for further public review and comment.

The proposed expansion will increase the capacity of the Tracy WWTP from 9 MGD to 16 MGD and in so doing, increase pollutant discharges to the Delta, the source of drinking water for over 20 million Californians. The Draft EIR fails to adequately address and propose mitigation for potential impacts to surface water quality. These impacts include increased costs to drinking water agencies associated with degradation of water quality at their intakes. The EIR must acknowledge these impacts and propose and adopt adequate mitigation measures for this significant water quality degradation. The Draft EIR must be revised to reflect that impacts to surface water quality are significant. The alternative of maximizing reuse of recycled water must be more thoroughly developed and considered, as it results in less of an impact to surface water quality than the proposed project. The City of Tracy must ensure that the costs of the expansion are not shifted to water suppliers.

CCWD requests that the Draft EIR be revised to address these significant issues and recirculated for public review and comment. Questions regarding CCWD's comments should be directed to Ms. Samantha Salvia at (925) 688-8057.

Sincerely,



Richard A. Denton  
Water Resources Manager

SAS

cc: Gary Carlton, Ken Landau, RWQCB, Central Valley Region  
David Spath, Robert Hultquist, California DoHS  
John Andrews, CALFED  
Walt Pettit, CUWA

14-4

14-5

**LETTER 14**

Contra Costa Water District  
December 3, 2001  
Richard A. Denton, Water Resources Manager

**Response to Comment 14-1**

*Commentor states that the Draft EIR fails to address and mitigate impacts of increased load of salt, organic carbon, pathogens and other pollutants. Commentor asserts that the increases in pollutant loads adversely impact the water quality and water supply of CCWD and other urban agencies that divert or export water from the Delta.*

The City appreciates the commentor's concern regarding potential impacts on water quality in the Delta; however, commentor's assertion demonstrates a misunderstanding of the proposed project's impacts. As described in Master Response Section A, the proposed project will not result in an increased concentration or mass in the City's discharge of TDS, organic carbon, pathogens, and many other constituents (*i.e.*, ammonia). Thus, the proposed project should in no way make it more difficult or costly for urban water agencies to meet state and federal drinking water standards. In addition, because the proposed project will not result in increased levels of the above-named constituents, the findings and conclusions set forth in the Draft EIR and Master Responses meets the requirements of CEQA.

**Response to Comment 14-2**

*Commentor asserts that the Draft EIR fails to acknowledge significant water quality impacts associated with increases in TDS. Commentor states that the Draft EIR fails to acknowledge an additional salt load of 29 tons per day to Old River from the proposed project.*

As explained in Master Response Section A(2)(a) and Response to Comment 14-1, the proposed project will actually decrease TDS concentration in the effluent and thus, will minimally decrease the concentration in the receiving waters, including the Tracy Pumping Plant and the San Luis Reservoir.

**Response to Comment 14-3**

*Commentor asserts that the City has a responsibility to minimize its contribution to pollutant loads in the Delta and should not assume that TMDLs will resolve water quality problems.*

See Master Response Section 2.B for a discussion of the proposed project's cumulative impacts.

**Response to Comment 14-4**

*Commentor expresses support for the maximum summertime reuse of recycled water alternative. Comment noted.*

## 2.0 COMMENTS AND RESPONSES

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As explained in Master Response Section 2.C, the Maximum Summertime Reuse of Recycled Water Alternative was determined to currently be infeasible due to lack of customers that would provide sufficient and consistent demand for recycled water. However, the City is committed to ongoing identification and development of recycled water customers and projects.

### Response to Comment 14-5

*Commentor re-states and summarizes its position that the proposed project will increase pollutant discharges to the Delta, thereby increasing water supplier's increased costs.*

See Response to Comments 14-1 through 14-4.

# DeltaKeeper

A PROJECT OF SAN FRANCISCO BAYKEEPER

6 December 2001

Mr. Steve Bayley, Deputy Director of Public Works  
City of Tracy, Public Works Department  
520 Tracy Boulevard  
Tracy, CA 95376

Via Fax: Hardcopy to Follow

Re: Tracy Wastewater Treatment Plant Expansion DEIR

Dear Mr. Bayley:

On behalf of DeltaKeeper, WaterKeepers Northern California and the California Sportfishing Protection Alliance (hereinafter DeltaKeeper), thank you for this opportunity to comment on the Tracy Wastewater Treatment Plant Expansion Draft Environmental Impact Report (SCH#2000012039). We incorporated by reference the comments of the Sierra Club, the Central Valley Regional Water Quality Control Board and South Delta Water Agency. The DEIR is grievously deficient because it fails to adequately identify and mitigate fishery and water quality impacts.

The United States Geological Survey in its 1992-95 study of the San Joaquin River Basin conducted, as part of the National Water Quality Assessment, concluded that the Basin was one of the most degraded basins in the nation. The San Joaquin River, Old River and the Sacramento-San Joaquin Delta (Delta) are listed as "Impaired Waterbodies," under provisions of the federal Clean Water Act; identified as "Toxic Hot Spots," pursuant to the Bay Protection and Toxic Hot Spot Cleanup Program and designated as critical habitat and migration corridors for species protected under federal and state endangered species acts.

The DEIR ignores crucial data and employs flawed modeling and unreasonable assumptions in a disingenuous attempt to weave an artificially reality to deny that the project will have any adverse effects on water quality or aquatic life. The blunt fact is that the discharge of millions of gallons of wastewater a day into an already seriously polluted river will have significant adverse impacts. To pretend otherwise is to deny scientific reality, empirical observation and common sense.

Any increase in the mass loading or concentration of pollutants identified as already impairing beneficial uses would be a significant adverse effect requiring acknowledgement and mitigation. Contrary to the claims in the DEIR, the proposed project will increase concentration and mass loading of pollutants and further degrade the South Delta. This DEIR and proposed project is

DEIR Comments, Tracy Wastewater, 5 December 2001, Page 1.

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15-1

15-2

inconsistent with statutory provisions of CEQA, the Porter-Cologne Water Quality Control Act, the federal Water Pollution Control Act (Clean Water Act) and will jeopardize the continued existence of species listed pursuant to state and federal endangered species acts.

The Clean Water Act does not contemplate "in lieu" mitigation as a substitute for compliance with water quality based limits nor does it allow consideration of economic concerns in the development of protective limits. It is unlikely that the Discharger will be able to secure an NPDES permit for the project as defined in the DEIR. We recommend that the project proponents develop a project alternative based on land application of wastewater.

We believe that the DEIR:

1. improperly ignores pertinent water quality data in the vicinity of the point of discharge,
2. does not comport with federal requirements prohibiting new sources that discharge to impaired waterbodies,
3. violates state and federal antidegradation policies,
4. fails to adequately evaluate impacts to water quality,
5. fails to acknowledge adverse effects and mitigate likely "take" of listed species, and
6. is predicated on flawed assumptions and improper modeling.

Our specific comments follow:

1. The DEIR Ignores Necessary Ambient Data in the Vicinity of the Discharge Outfall.

The monitoring sites considered in the DEIR's water quality data analysis are not representative of the actual water quality in Old River near the point of discharge. The reference sites in the San Joaquin River (3), Old River near Byron, Middle River at Borden Hwy., the DMC intake and the headworks of the Delta pumping plant all have greater flow and larger dilution than is likely within the constrained Old River channel at the outfall. The project can claim no adverse impact only by failing to monitor and analyze water quality in the actual discharge area.

For example, the DEIR claims that dissolved oxygen levels are consistently above criteria at the reference sites. However, California Department of Water Resources dissolved oxygen data for Old River (Tracy Wildlife Association) and Middle Rivers (Howard Road) for the year 2000, show dissolved oxygen levels to be far lower than the San Joaquin River at Mossdale and, in fact, are considerably below criteria. Consequently, there is no assimilative capacity for additional dissolved oxygen demand. We have attached graphs of the DWR data.

The same can be said for temperature and other water quality parameters. The City of Tracy must have collected monitoring data pursuant to NPDES monitoring requirements. The DEIR is deficient in failing to utilize water quality data collected near the project.

15-3

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2. The Proposed Project Does Not Comport With Federal Requirements Prohibiting New Sources Discharging To Impaired Waterbodies.

The federal Clean Water Act requires the development of a Total Maximum Daily Loading (TMDLs) for all waterbodies identified as impaired on the 303(d) list and for each pollutant identified as impairing those waterways. There is no remaining assimilative capacity in receiving waters for impairing pollutants. The TMDL process consists of quantifying the mass loading of pollutants impairing waterways, pinpointing responsible sources and subsequently achieving compliance by allocating load reductions to identified sources.

EPA regulations at 40 CFR 122.44(d) require, for all NPDES permits, including those being reissued, that effluent limitations be included to meet water quality standards and wasteload allocations. The regulations also provide (in part) at 40 CFR 122.4(l) that "No new permit may be issued to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards." New dischargers are defined at 40 CFR 122.2 as "any building, structure, facility, or installation:

- a. From which there is or may be a 'discharge of pollutants;'
- b. That did not commence the 'discharge of pollutants' at a particular 'site' prior to August 13, 1979;
- c. Which is not a 'new source;' and
- d. Which has never received a finally effective NPDES permit for discharges at that 'site.'

15-8

New Source is defined as "any building, structure, facility, or installation from which there is or may be a 'discharge of pollutants,' the construction of which commenced:

- a. After promulgation of standards of performance under section 306 of CWA which are applicable to such source; or
- b. After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal."

The regulations at 40 CFR 122.44(d)(1) provide that all permits must include "any requirements in addition to or more stringent than promulgated effluent limitation guidelines or standards (under other sections of the Clean Water Act) necessary to achieve water quality standards established under §303 of the Clean Water Act, including State narrative criteria for water quality."

Section 302(a) of the CWA requires that where a water quality permitting authority determines that "discharges of a pollutant from a point source...would interfere with the attainment or maintenance of (applicable) water quality standards, effluent limitations..shall be established which can reasonably be expected to contribute to the attainment or maintenance of such water quality."

These regulations clearly prohibit new or expanded discharges into impaired waterbodies and require that renewed permits contain effluent limitations sufficient to meet water quality standards and wasteload allocations. DeltaKeeper believes the DEIR is fundamentally deficient because it: a) proposes new source and increased mass loading to impaired waterbodies, b) fails to identify water quality impacts and c) fails to establish acceptable mitigation measures protective of the San Joaquin River and Delta.

15-8

### 3. The Proposed Project Violates State and Federal Antidegradation Policies.

Any increase in the discharge of identified impairing pollutants unreasonably affects beneficial uses and exceeds applicable water quality objectives. Any increased degradation of already degraded waterways unreasonably affects beneficial uses. The DEIR is deficient because it fails to acknowledge that the project will violate state and federal anti-degradation policies.

The Federal Antidegradation Policy at 40 CFR 131.12 states, in part, that before allowing waters of the nation to be degraded the "State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control."

State Water Resources Control Board Resolution No. 68-16 states, in part, that "[a]ny activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

15-9

USEPA points out in its 12 November 1999 Objection Letter to the San Francisco Regional Board concerning Tosco's Avon refinery in Martinez that "[a]ny increase in loading of a pollutant to a water body that is impaired because of that pollutant would presumably degrade water quality in violation of the applicable anti-degradation policy." The May 1990 Administrative Procedures Update, entitled *Antidegradation policy implementation for NPDES permitting*, APU 90-004, provides guidance for the Regional Board in implementing State Board Resolution 68-16 and the federal Antidegradation Policy, as set forth in §40 CFR 131.12. This document states that "[t]he Regional Boards must consider antidegradation effects and conduct an antidegradation analysis when the proposed activity results in ...a substantial increase in mass emissions of a pollutant, even if there is no other indication that the receiving waters are polluted" (p.3). Furthermore, the document reads, "If baseline water quality is equal to or less than the quality as defined by the water quality objective, water quality shall be maintained or improved to a level that achieves the objectives" (p.4).

The DEIR fails to consider the State Water Resources Control Board position on increased mass

loading -- guidance which is binding on the Central Valley Regional Water Quality Control Board. In Order No. WQ 90-5, the State Board directed the San Francisco Regional Board on the appropriate method for establishing mass-based limits which comply with the State and federal antidegradation policies. In that 1990 Order, considering a petition relating to the South San Francisco Bay sewage plants, the State Board articulated the following general principles:

In order to comply with the federal antidegradation policy, the mass loading limits should also be revised, based on mean loading, concurrently with adoption of revised effluent limits. The [mass] limits should be calculated by multiplying the [previous year's] annual mean effluent concentration by the [four previous year's] annual average flow.

Order No. WQ 90-5 at 78. The reason the State Board ordered the mass limit equation revised was to hold the South Bay plants to their actual performance so as not to violate the antidegradation policy:

The South Bay permits allow both an increase in the volume of the discharges, as well as an increase in the mass emissions of toxic pollutants over current levels. To illustrate, the actual 1989 mass emissions from the three treatment plants was 47,600 pounds per year (lbs/yr). Allowable mass emissions under the revised mass emission limits total 67,968 lb/yr. Thus, the permits allow a lowering of surface water quality below the highest levels achieved since 1975, and the federal [antidegradation] test must be applied. Likewise, State Board Resolution No. 68-16 is applicable.

15-9

Order No. WQ 90-5 at 73 (emphasis added). Hence, the State Board Order finds that any mass limit that fails to lock in the "highest levels achieved since 1975" must comply with the antidegradation policy.

The State Board articulates the appropriate equation which applies the last available annual mean concentration multiplied by the annual average flow over a prior four year period. See supra. The State Board Order reiterates that basic equation, stating: "In order to comply with the federal antidegradation, the mass loading limits should also be revised, based on mean loading, concurrently with adoption of revised effluent limits." Order at 78. Hence, if the proposed project is not proposing mass limits based on the current "mean loading", the project will be in violation of the antidegradation policy and the State Board previous Order. See also EPA Technical Support Document for Water Quality-Based Toxics Control at 110 (§ 5.7.1). Mass limits must be included in the permit consistent with the State Board guidance.

Where a waterbody is impaired, with no remaining assimilative capacity, the only reasonable direction for pollution levels to go is down. A Regional Board cannot continue allowing increases in mass loading of pollutants simply because TMDLs have not been conducted. Indeed, the State Board recently rejected delayed TMDLs as a legitimate rationale for deferring water quality mass-based effluent limits. See in the Matter of the Petition of Las Virgenes Municipal Water District, NRDC et al. For Review of NPDES Permit No. CA0056014, Order No. WQ 98-11 at 11 ("state's failure to complete TMDLs cannot be used as an excuse to defer the inclusion of WQBELs in permits as required by Clean Water Act Section 301(b)(1)(C)").

Restrictions on additional pollutant loading are a necessary stabilization precursor to any successful effort in bringing the San Joaquin River and Delta into compliance through wasteload reductions. Where no assimilative capacity exist, it is unreasonable to allow increases in the loading of pollutants to the river and Delta while the Regional Board is mandated to reduce those discharges.

Any assertion that the proposed discharge: a) will not cause significant impacts to aquatic life, b) does not cause a violation of water objectives, c) is necessary to accommodate housing and economic expansion, and d) is a benefit to the people of the State is fundamentally incorrect. Other municipalities have successfully disposed of wastes without discharging wastewater to degraded rivers. Lathrop retains the option of discharging to land, installing advanced treatment beyond tertiary or purchasing offsets from other dischargers to ensure no net mass increase. The DEIR must analyze waste disposal options that hold mass loading to the river at current or reduced levels.

15-9

Any project that allows one municipality to artificially minimize waste management costs by externalizing the disposal of wastes to an already degraded river and estuary that is the common property of all of the people of California has not met the test of "maximum benefit of the people of the State" and consistent with State Board Resolution No. 68-16 and federal antidegradation policy (40 CFR 131.12). The increase in pollutant mass loading will have a detrimental effect on aquatic life, contribute to violations of water quality standards and increase the risks and costs to the 21 million people who depend upon the Delta for their drinking/irrigation/recreation water. Any increased housing and economic expansion facilitated by the Tentative Permit will be at the expense of other communities along the San Joaquin River and Delta that will incur greater load reductions and increased expense (because of increased loading by the proposed project) upon completion of a TMDL and allocation of load reductions.

The DEIR is deficient because it fails to: a) acknowledge that the project will violate anti-degradation policies, b) analyze reasonable alternatives to discharging increased wasteloads, c) discuss the increased costs to other communities that will have to institute greater wasteload reductions because of the project's increased loading and d) cap wasteloads at current levels.

#### 4. The Proposed Project Will Further Impair Water Quality.

15-10

The San Joaquin River is listed on the 303(d) List of Impaired Waterbodies because of boron, selenium, electrical conductivity, chlorpyrifos, DDT, diazinon, group A pesticides and unknown toxicity. Delta waterways are listed because of mercury, low dissolved oxygen, electrical conductivity, chlorpyrifos, DDT, diazinon, group A pesticides and unknown toxicity.

By definition, any increase in the discharge of impairing pollutants to impaired waterways is a "significant" change requiring mitigation. Any new discharge that has a "reasonable potential," as defined in the federal regulations, to exceed a water quality objective is a significant change requiring mitigation.

The DEIR carefully selects a truncated data-set of ambient water quality measurements at "selected reference sites" in a transparent and dishonest effort to avoid having to admit that the project will have significant adverse impacts on water quality.

The DEIR employs median hardness values. This is highly improper. The median of 1, 3, and 100 is 3. Average and worst-case values must be used. EPA's California Toxic Rule (CTR), the State Implementation Plan for the CTR and EPA's Technical Support Document require use of a "worst case" hardness value in developing reasonable potential and computing numerical limits. The proposed project's outfall lies within the tidal prism of a severely impaired waterway that is identified critical habitat and a major migration corridor for endangered species. The outfall area is subject to multiple dosing because of tidal flow and reversed flows due to water exports. Clearly, a "worst-case" hardness value must be used.

a. Copper: The DWR monitoring at Vernalis (between 7/2/97 & 8/25/98) reveals a maximum dissolved copper concentration of 8 µg/l (Appendix B). Hardness was found to be as low as 32 mg/l (between 9/19/90 & 6/28/99). A copper concentration of 8 µg/l would exceed the one-hour acute aquatic life criteria even at a hardness of almost 60 mg/l and would exceed the four-day chronic criteria even at a hardness of more than 85 mg/l. The 25th percentile of copper was 5.0 µg/l and the 10th percentile of hardness was 53.8. Medians are improper for assessing "worst-case" impacts on aquatic species. It is, however, interesting to note that according to the DWR data, dissolved copper frequently exceeds criteria.

The DEIR claims that the projected effluent copper concentration will be an average of 5 µg/l with a minimum of 10 µg/l. Zinc effluent concentrations is projected to be 30 µg/l and 50 µg/l, respectively. Copper and zinc are additive in toxicity and copper toxicity increases with elevated temperatures and low dissolved oxygen levels, both of which exist in the South Delta. Stressful sublethal impacts to salmonids are documented in the literature at levels as low as 1.7 µg/l and avoidance can occur at concentrations as low as 0.1 µg/l. The DEIR is deficient for employing

median values, ignoring the fact that limits in the permit will be based on a worst-case situation and failing to consider additive effects. Average values must be used.

b. Bis (2-ethylhexyl) phthalate: Concentrations of bis (2-ethylhexyl) phthalate in Tracy wastewater effluent have been documented to be as high as 79 µg/l. The California Primary MCL is 4 µg/l. The USEPA Primary MCL is 6 µg/l. Various one-in-a-million criteria including: the Cal/EPA Cancer Potency Factor as a Drinking Water Level of 12 µg/l, the USEPA IRIS of 3 µg/l and the USEPA Drinking Water Health Advisory or SNARL of 3 µg/l were exceeded. The DEIR is deficient for failing to include effluent data and acknowledge that there is no remaining assimilative capacity in the San Joaquin River for bis (2-ethylhexyl) phthalate.

c. Conductivity: EC levels at Bowman Road on the San Joaquin range as high as 821 mg/l, 828 mg/l and 1026 mg/l. The specific conductance agricultural goal is 700. We identify EC because it has been incorrectly suggested that EC impairment on the San Joaquin River doesn't extend to Stockton. The DEIR is deficient for failing to analyze EC levels in Old River in the vicinity of the project outfall.

d. Total Dissolved Solids (TDS): The South Delta is listed on the 303(d) list as impaired because of TDS. The secondary MCL for TDS is 500 mg/l as a recommended level, 1000 mg/l as an upper level and 1500 mg/l as a short-term maximum. The recommended agricultural water Quality goal for TDS is 450 mg/l as a long-term average. The projected effluent is 1000 mg/l as a long-term average and maximum. This exceeds the agricultural goal and equals the upper level limit. There are agricultural intakes in the vicinity of the outfall. Since the project TDS concentrations are the same as existing TDS concentrations, any increase in volume would represent an increase in mass loading of an impairing pollutant.

e. Temperature: The CalFed EIR/EIS states that the mainstem of the San Joaquin River between the Merced River confluence and Vernalis in the fall and spring often exceed stressful or lethal levels for upstream and downstream migrating fall-run chinook salmon. When the Vernalis flow is 5,000 cfs or less in May, water temperatures are at levels of chronic stress. Increased water temperature is identified as one of principal causes of declining chinook salmon populations in the San Joaquin River in the September 1998 EIR/EIS titled Meeting Flow Objectives for the San Joaquin River Agreement 1999-2010 (VAMP Agreement).

Juvenile salmon show signs of adverse effects at river temperatures of 65 degrees F. Migration of adults is usually delayed when temperatures reach 70 degrees F. At 72 degrees F, adult mortality may occur. The City of Stockton's Ambient Water Quality Monitoring Program on the San Joaquin River (at Bowman Road) shows that temperatures during the September migration of chinook salmon reach 74.3 F (23.5 C). DWR data show that temperatures in Old River at the

DMC Barrier can reach 72 + degrees F in September. The temperature in the vicinity of the outfall is likely to be higher. The DEIR projects that effluent temperature will average 77 degrees F and reach 85 degrees F. The DEIR is deficient for failing to acknowledge that there is no remaining assimilative capacity for increased temperature.

The DEIR fails to distinguish between California's Thermal Plan and water quality temperature criteria. The Thermal Plan does not protect aquatic life from high temperature wastewater being discharged to an elevated temperature river. The Thermal Plan only limits incremental increases in temperature. In so far as elevated temperature is deleterious to salmonids, effluent temperature must be limited so as not to cause the receiving water to be harmful to salmon and steelhead. The DEIR is deficient for failing to clarify the difference between the Thermal Plan and temperature criteria or to analyze and mitigate the project's discharges of high temperature.

f. Dissolved Oxygen: The DEIR claims that dissolved oxygen levels are consistently above criteria at the reference sites. However, California Department of Water Resources dissolved oxygen data for Old River (Tracy Wildlife Association) and Middle River (Howard Road) for the year 2000, show dissolved oxygen levels to be far lower than the San Joaquin River at Mossdale and, in fact, are considerably below criteria. We have attached graphs of the DWR data.

The San Joaquin River, in the vicinity of Stockton, is listed on California's 303(d) list as impaired because of low dissolved oxygen levels. This reach is also listed as a Toxic Hot Spot pursuant to California's Bay Protection and Toxic Cleanup Program. Upstream sources of oxygen demand substances are identified as major contributors to the chronic low DO problems of the lower San Joaquin River.

15-10

The proposed project will increase mass loading of oxygen demand constituents that will exacerbate low dissolved oxygen conditions in Old River and the South Delta. This is a significant adverse impact. The DEIR is deficient for failing to acknowledge that the project will adversely impact dissolved oxygen in the South Delta.

Any increase in oxygen demand constituent loading from the project would violate state and federal antidegradation regulations. It is improper to dismiss assessment of significant impacts simply on the basis that they will be addressed in some future regulatory process that may or may not eliminate the problem. The DEIR is deficient for failing to adequately acknowledge or discuss the project's effects on dissolved oxygen impairment.

g. Mercury.

Mercury is an acute bioaccumulative toxin. The San Joaquin River and Delta are listed on the 303(d) list as impaired because of mercury. The study titled *Contaminant Concentrations in Fish*

from the Sacramento-San Joaquin Delta and Lower San Joaquin River 1998 by the San Francisco Estuary Institute establishes that catfish and large-mouth bass caught from the San Joaquin River have excessively high tissue concentrations of mercury. A copy of that report is available on SFET web site. Mercury concentration in fish tissue is a serious problem placing real people along in the South Delta at risk.

The DEIR states that the water quality objective in the CTR is 50 ng/l. The CTR criteria fails to consider the long-term residual bioaccumulative effects of short-term elevated concentrations of mercury in water. We understand that the Regional Board submitted formal comments to EPA opposing the proposed California Toxics Rule change in the mercury objective. The US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), in their biological/conference opinion on the proposed California Toxic Rule, characterized the EPA proposed criteria as jeopardizing the continued existence of numerous species listed under the federal Endangered Species Act.

Based on a review of the scientific literature, the Services proposed a Reasonable and Prudent Alternative for mercury of 2.0 ng/l (0.002 µg/l) on a total unfiltered basis to protect listed amphibians and birds. They further proposed that present standards be continued for fish until the EPA could promulgate numeric aquatic life criteria which would consider the bioaccumulative nature of mercury and the long-term persistence of mercury in aquatic sediments and food chains, and the potential for maternal transfer of methyl mercury to eggs and young for water bodies within the range of all Central Valley ESUs of chinook salmon and steelhead trout, the Sacramento splittail, and the threespine stickleback. (Biological Conference Opinion, page 181). Following consultation with USFWS and NMFS, the USEPA announced that, in the near future, it will propose new, lower bioaccumulative standards for mercury.

15-10

The Delta is already identified as impaired because of mercury and the San Joaquin River will likely be listed as impaired following this years 303(d) list update. Federal regulations at 40 CFR 122.41 explicitly state that "No new permit may be issued to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards." Any increase in mass loading of mercury would degrade existing water quality, contravenes USEPA regulations and violate the applicable anti-degradation policy. The DEIR is deficient for failing to acknowledge that the facility may be precluded from obtaining necessary permits to discharge to surface waters.

It is disingenuous to suggest, as the DEIR does, that mercury loading will somehow be resolved in a future TMDL. Any increases in mass loading from the proposed project will impose larger reductions on existing dischargers. Thus, the DEIR is deficient for failing to acknowledge the significant impacts from the project and failing to mitigate the increased financial burden imposed on existing dischargers.

#### h. Organophosphorus Pesticides.

The Delta and the San Joaquin River are listed as Impaired Waterbodies because of diazinon and chlorpyrifos under 303(d) of the Clean Water Act. Regional Board studies have established that diazinon and chlorpyrifos are additive in effect. Other studies have demonstrated that organophosphorus insecticides interact synergistically with atrazine and other triazine herbicides that are frequently observed in the San Joaquin River. Many fish populations are in serious decline and phytoplankton and zooplankton populations are down one to two magnitude since the mid-seventies. Evidence indicates that instream impacts are strongest when acute toxicity is observed in ambient water.

OP pesticides are the most pervasive and well documented source of aquatic life toxicity in the Delta Estuary and San Joaquin River and their tributaries. The scientific data, much of it published in refereed literature, is irrefutable and conclusive: organophosphate and carbamate insecticide residuals are consistently above the threshold for toxicity to invertebrate and fish life that is adverse to the designated beneficial uses of the San Joaquin River and Delta.

No municipal sewer system is entirely free of infiltration and inflow. A number of studies, (notably a study of ten POTWs in the Bay area) have found diazinon and chlorpyrifos in municipal treatment plant effluent. These compounds are routinely detected in POTW effluent in the Central Valley. The organophosphate pesticide TMDL is scheduled to be completed by June 2002 and the Basin Plan Amendment by June 2003. The TMDL will likely be implemented before the proposed project is constructed. Increases in organophosphate loading would impose additional hardship on existing dischargers as they are required to comply with load allocations and waste-load allocations. Any hardship or expense imposed on others as a result of the project must be mitigated.

15-10

Federal and state regulations prohibit increased mass loading of an impairing pollutant to impaired waterbodies. Any increase in organophosphate pesticide loading from the project would violate state and federal antidegradation regulations. It is improper to dismiss assessment of significant impacts simply on the basis that they will be addressed in some future regulatory process that may or may not eliminate the problem. The DEIR is deficient for failing to acknowledge or discuss project effects on organophosphate impairment.

#### i. Toxicity.

Both the San Joaquin River and the Delta are listed under § 303 (d) of the Clean Water Act as impaired because of unknown toxicity. The Tentative Permit proposes to allow additional toxicity in the mixing zone. Under low flow conditions, substantial toxicity is likely to be caused by interactions between the mixture of high temperature, ammonia, low dissolved oxygen, and elevated

metal and organic chemical concentrations in the effluent.

40 CFR 122.44(1)(i) states that "[I] limitations must control all pollutant or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." "When the permitting authority determines... that a discharge causes has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for whole effluent toxicity, the permit must contain effluent limits for whole effluent toxicity." 40 CFR 122.44(1)(iv)

By definition, an impaired waterbody has no remaining assimilative capacity. Mixing zones are not allowed where there is no assimilative capacity in the receiving waters. The DEIR is deficient for failing to acknowledge that the San Joaquin River has no remaining assimilative capacity for toxicity.

j. Cumulative Effects.

15-10

The DEIR fails to analyze cumulative impacts by stating that there are too many variables and that making cumulative effect conclusions are problematic. It is not problematic that increases in mass loading of 303(d) listed pollutants will exacerbate water quality. Indeed, the DEIR states that the cumulative effects of 303(d) listed pollutants are "significant and unavoidable." CEQA may allow statements of overriding consideration but water quality limits in NPDES permits do not. It is improper to dismiss assessment of significant impacts simply on the basis that they will be addressed in some future regulatory process that may or may not eliminate the problem. The DEIR must inform decision makers that it is unlikely that the proposed project will be given a permit to increase loading of 303(d) listed pollutants.

DeltaKeeper is further concerned that the DEIR has failed to acknowledge the cumulative, deleterious effects of additive or synergistic interactions of multiple stressors on impaired ecosystems. EPA criteria are developed under laboratory conditions and assume no multiple stressors. Copper and zinc are additive. High temperatures, low dissolved oxygen and an assortment of organic and inorganic constituents combine to create impacts far beyond the effects of a single pollutant. The DEIR is deficient because it failed to consider or discuss cumulative effects of multiple stressors on already stressed species.

5. The Project Will Result In An Illegal Take Of Endangered Species.

Fish species in the Delta and San Joaquin River that are protected under endangered species acts include: Central Valley steelhead (*Oncorhynchus mykiss* - federal listed as threatened); Delta smelt

15-11

(*Hypomesus transpacificus* - federal and state listed as threatened); Sacramento splittail (*Pogonichthys macrolepidotus* - federal listed as threatened). Depending upon water-year type and operation of the state and federal project pumps, other listed species that can be drawn into these waterways include winter-run chinook salmon (*Oncorhynchus tshawytscha* - federal and state listed as endangered) and Central Valley spring-run chinook salmon (*Oncorhynchus tshawytscha* - federal and state listed as threatened). Fall/late-fall-run chinook salmon are a species of concern and have been proposed to be listed.

The National Marine Fisheries Service (NMFS) has identified the Delta and the San Joaquin River as "Critical Habitat." 65 Fed. Reg. 7777-7779 (2000) (designating critical habitat for the Central Valley spring-run chinook salmon and Central Valley steelhead). Final 4-D rules governing "take" of Central Valley Steelhead became effective in July 2000. 65 Fed. Reg. 42422-42481 (2000) (adoption of regulations deemed advisable for the conservation of species). Among activities identified as most likely to result in injury or harm to listed salmonids includes "[d]ischarging pollutants, such as oil, toxic chemicals, radioactivity, carcinogens, mutagens, teratogens or organic nutrient-laden water including sewage water into a listed species' habitat." Id. at 42472.

Species life cycles and altered flows caused by operation of the state and federal project pumps combine to ensure that listed species are present in local waterways much of the year. For example, Sacramento splittail are foraging and beginning their migration to upstream spawning areas in December, January and February. Adult Delta smelt begin their spawning migration into fresher water during February to March. Steelhead and Fall-run chinook salmon are migrating through the Delta from late Fall through Spring. Early life stages can be found from February to mid-August. Winter-run chinook juveniles arrive in the Delta during the fall and winter to rear for a period ranging from weeks to several months. They begin their outmigration as smolts during February and are frequently found in the South Delta in March and April. Spring-run chinook salmon yearlings migrate through the Delta during the fall and winter months.

DeltaKeeper believes that any increase in pollutant discharges or resulting increase in ambient pollutant concentration potentially represents a taking of listed species, individually, and a modifying of critical habitat and a jeopardizing of survival of listed species. The DEIR is deficient in failing to: a) acknowledge that pollutant discharges are a significant impact to aquatic life, b) adequately discuss likely measures that will be required following endangered species consultation with USFWS and NMFS and c) establish reasonable mitigation measures.

6. The project water quality modeling is seriously flawed:

Models are complex simulations. Subtle changes in data, coefficients or assumptions can dramatically alter output. It is crucial that models be properly calibrated and verified. It is improper

DEIR Comments, Tracy Wastewater: 5 December 2001, Page 13:

Given reverse flows, prolonged periods of near slake water at low river flows and multiple dosing; a mixing zone is not likely to be granted, especially for toxicity. How did the modeling account for

DEIR Comments, Tracy Wastewater, 5 December 2001, Page 14.

15-11

15-12

multiple dosing and slake flows?

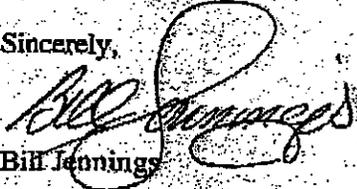
The DEIR is deficient because it failed to: a) include relevant data, b) model a worst-case scenario, c) use an accurate, verified model d) analyze the project's effects on Old River and e) consider changing bottom topography. It relied upon unsupportable assumptions, used median and monthly average values and ignored benthic communities in the vicinity of the diffuser. The idea that the DEIR could, presumably with a straight face, declare that modeling demonstrated no significant impacts, based upon a model that is only accurate to plus or minus 50% under the best of conditions, is beyond reasonable comprehension.

15-12

In conclusion, we request that the lead agencies supplement this woefully inadequate DEIR with additional analysis of fisheries and water quality impacts and recirculate the DEIR to all interested parties.

If you have any questions or require clarification please contact Bill Jennings at (209) 464-5090.

Sincerely,



Bill Jennings

cc: Jonathan Kaplan, San Francisco BayKeeper  
Leo O'Brien, Legal Director, WaterKeepers Northern California  
Michael Lozeau, Earthjustice Legal Defence  
Michael Kummer, CVRWQCB  
Eric Parfey, Sierra Club  
Waldo Holt, Audubon Society  
Diane Rife Parks, League of Women Voters  
John Herrick, South Delta Water Agency

to use an uncalibrated/unverified model as justification to allow increased toxicity in impaired waters. Computer models, at their best, only represent an idealization of actual field conditions and must be used with extreme caution to ensure that the underlying model assumptions hold for the site-specific situation being modeled. Verified models buttressed by empirical observation can indicate trends and can be useful in evaluating alternatives. However, they are frequently inaccurate in predicting real-world levels of toxic constituents. The Central Valley Regional Water Quality Control Board informed staff during a recent mixing zone workshop that models that have never been independently calibrated and verified should not be considered in NPDES permit development.

As of last year, EPA Region IX staff informed us that CORMIX has not been approved by U.S. EPA. Dr. Walter Frick, U.S. EPA mixing zone consultant at the Athens Hydraulic Laboratory, has serious reservations about the accuracy of CORMIX in tidal situations. Personal communication. The CORMIX User's Manual states that "available field and laboratory data has shown that the CORMIX predictions on dilutions and concentrations, with associated plume geometries are accurate to within + or - 50% (standard deviation). The manual also carries the warning that "[t]he user must take note that HYDRODYNAMIC MODELING by any known technique is NOT AN EXACT SCIENCE." Yet, the DEIR reports the modeling results with a certitude approaching religious faith.

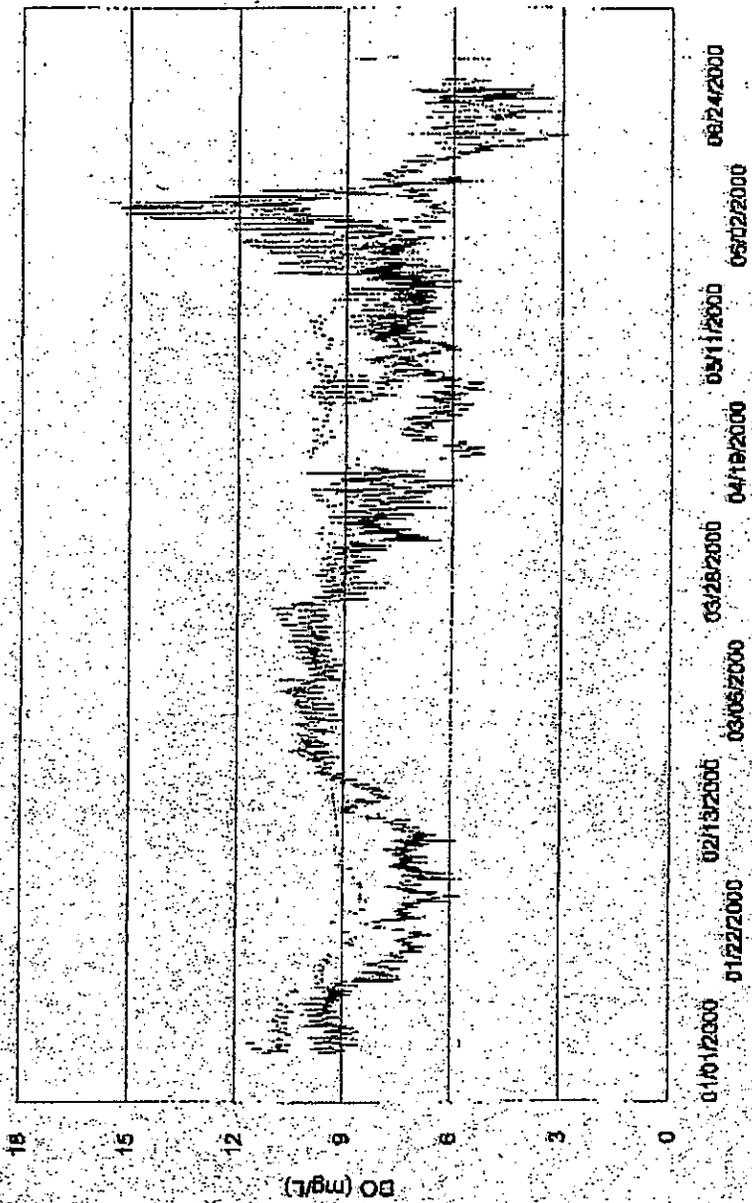
15-12

There is no discussion in the DEIR analysis of which CORMIX model (1, 2 or 3) or version (3.1 or later?) was used. An informed assessment of the CORMIX modeling effort cannot be made without the Session Report and Prediction File. Dr. Robert Donker (co-developer of CORMIX) tells us that input variables are critical (channel geometry, surface and bottom temperature and density, discharge concentration, velocity, friction factors, stratification type, etc.) and that worst case situations must be modeled. The DEIR must provide the Session Reports and Prediction Files for each model run. A worst case situation was clearly not modeled in the DEIR. Average monthly values and median constituent concentrations were used rather than maximum/minimum values. The proposed project envisions two sets of diffusers. How did the modeling account for potential interference?

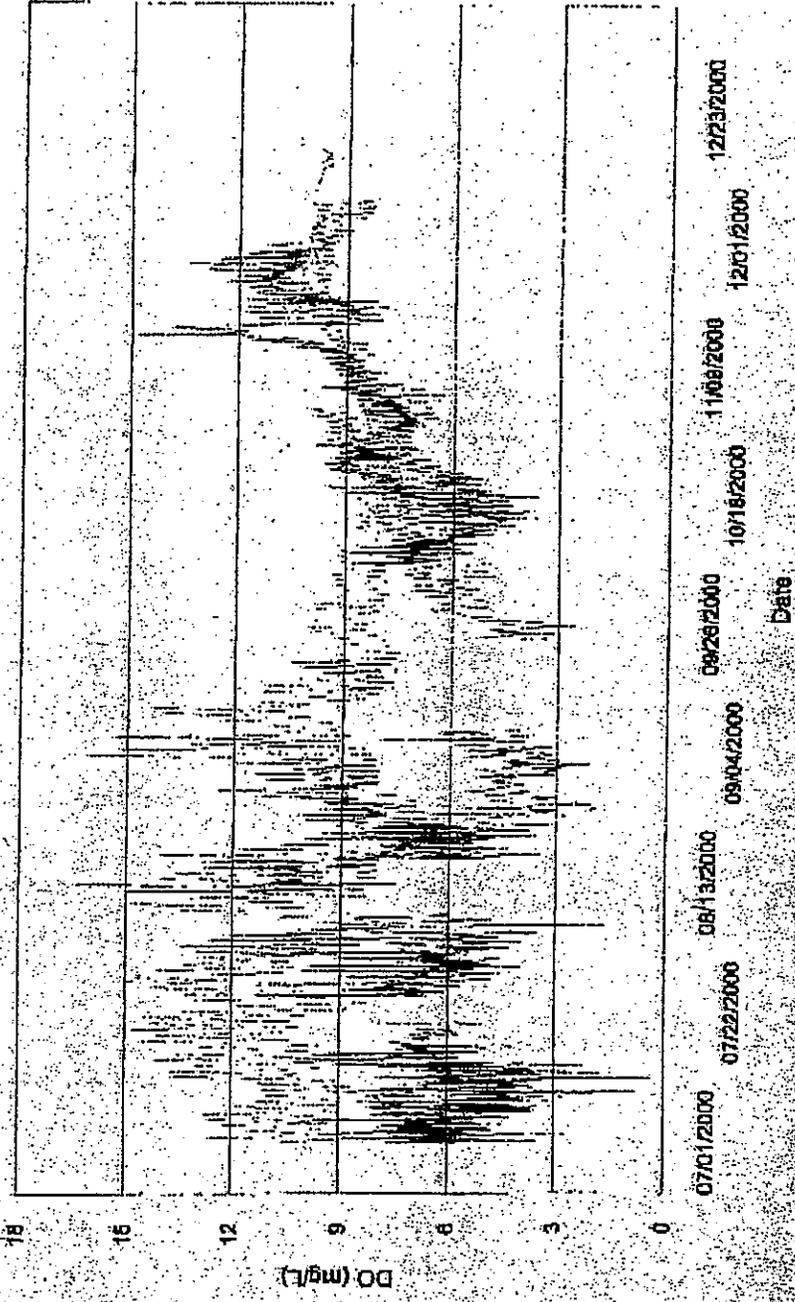
We could find no discussion or analysis of changing channel topography. River bottoms are never static. The modeling for the Sacramento Regional Wastewater Treatment Plant revealed that the bottom of the Sacramento River fluctuates as much or more than six feet. As the Sacramento Regional modeling demonstrated, bottom contours dramatically affect mixing. What has been the historical trend in changing bottom topography in the San Joaquin River near the Discharger's outfall? We have noticed rapidly changing sandbars in the San Joaquin (having hit them several times). Any mixing zone analysis must model scenarios that include changing bottom contours.

Given reverse flows, prolonged periods of near slake water at low river flows and multiple dosing, a mixing zone is not likely to be granted, especially for toxicity. How did the modeling account for

# Disolved Oxygen



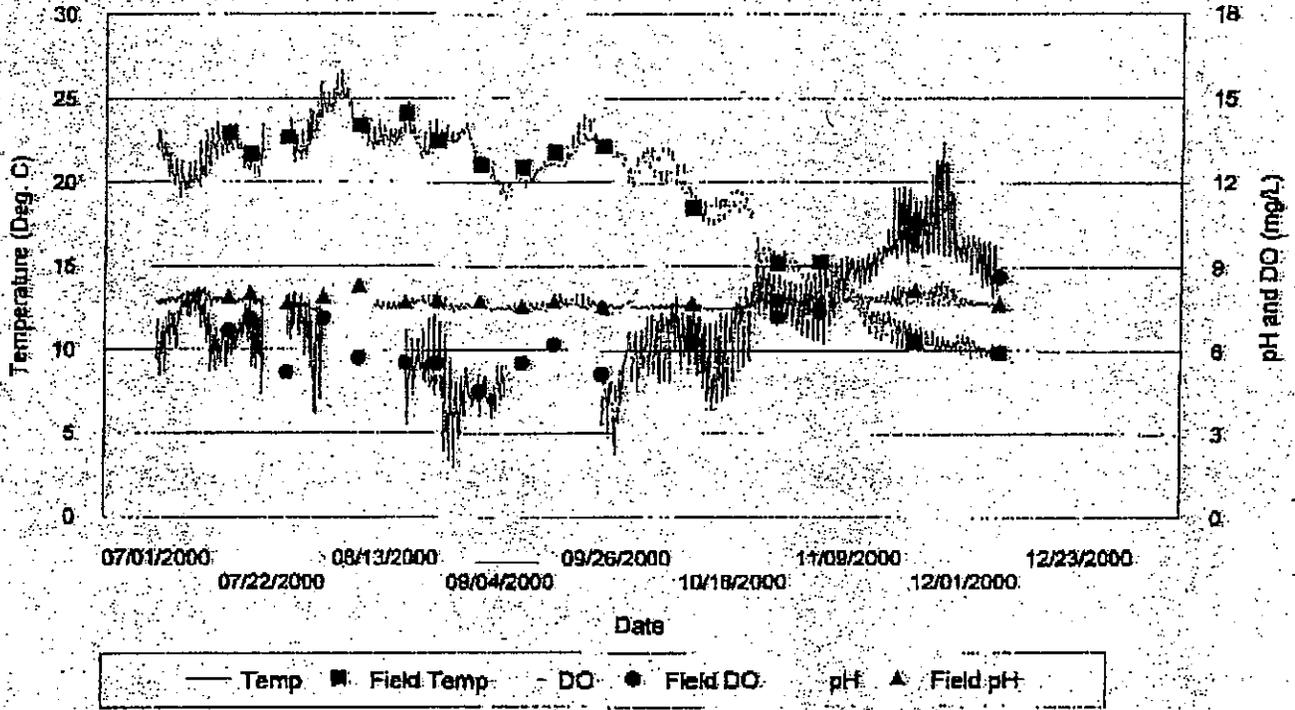
# Dissolved Oxygen



Mossdale — Old River @ TVWA — Old River @ BMC — Middle River @ Howard Rd.

# Water Temperature, Dissolved Oxygen, and pH

Old River @DMC Barrier



**LETTER 15**

Delta Keeper  
December 6, 2001  
Bill Jennings

**Response to Comment 15-1**

*Commentor asserts that the Draft EIR is deficient in identifying fisheries and water quality impacts and refers to the listing of the San Joaquin River, Old River, and the Sacramento-San Joaquin Delta as "Impaired Waterways."*

Chapter 4.6 of the Draft EIR, as well as Master Response Section A(3), analyze the impact of the proposed project upon various water quality parameters. Chapter 4.8 of the Draft EIR, as well as pages 4.6-38 to 4.6-40 of the Draft EIR, and Master Response A(3)(f) analyze the proposed project's impacts upon fisheries. The data and methodology to support these analyses are summarized in Master Response Section A(1). The information presented in the Draft EIR acknowledges the impaired water status of the Delta waterways that are the receiving waters for the proposed discharge. The proposed discharge is to Old River, downstream of the San Joaquin River at Vernalis, and within the legal definition of the Sacramento-San Joaquin Delta. Therefore, the discharge is to waters with 303(d) listings for Delta Waterways; 303(d) listings for the San Joaquin River are not applicable as they pertain to the San Joaquin River above Vernalis, outside the possible influence of the proposed discharge.

**Response to Comment 15-2**

*Commentor states that the discharge of millions of gallons of wastewater into a seriously polluted river will have significant adverse effects.*

As set forth in Master Response Section A, the proposed project will improve the quality of the City's discharge and therefore, the receiving water. Further response is not possible because the commentor failed to identify specific issues or concerns.

*Commentor states that the Draft EIR ignores crucial data, uses flawed modeling, makes unreasonable assumptions, suggests that the proposed project will increase concentration and mass loadings of pollutants, and suggests that the proposed project will degrade the South Delta.*

Master Response Section A(1) addresses in detail the data and methodology supporting the Draft EIR's analysis.

- Master Response Section A(1)(a) provides the data collected pursuant to the City's Current NPDES permit for the period January 2000 through December 2001.
- Master Response Section A(1)(a) demonstrates the limitations of the data collected pursuant to the City's current NPDES permit in so far as that data does not account for the proposed project's shift from secondary to tertiary treatment. Master

## 2.0 COMMENTS AND RESPONSES

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Response Section A(1)(b) demonstrates why data from the City of Santa Rosa's wastewater treatment plant is relevant for predicting the impacts of the proposed project's tertiary system.

- Master Response Section A(1)(c) discusses the value of using data from the City of Manteca to predict an absolute, worst case scenario for the proposed project's thermal impacts.
- Master Response Section A(1)(d) clarifies the City's use of minimum, maximum, percentile, and median values.
- Master Response Section A(1)(e) discusses the process by which the City, in conjunction with the State Department of Water Resources, identified the different tidal barrier scenarios to be used in the City's modeling of tidal impacts.
- Master Response Section A(1)(f) discusses the basis for the City's modeling technique.
- Master Response Section A(1)(f)(iii) provides the basis for the City's selected use of a "reasonable worst case" analysis.

Commentor does not identify particular constituents about which the commentor is concerned, with respect to the proposed project's impacts upon concentration and mass loading. As set forth in Master Response Section A, the proposed project will actually improve the quality of the City's discharge, and therefore, the City expects some improvement in the receiving waters. Master Response Section A(3) addresses the proposed project's impact on the temperature of the receiving water, and explains why the proposed project's impact is less than significant for purposes of CEQA.

As described in Master Response Section A(2)(a) the City determined the proposed project's impacts upon TDS concentrations in the receiving water is less than significant. Nonetheless, to address long-term regional environmental goals that go beyond the minimum standards required by CEQA, the City has committed to decreasing the TDS concentrations in the source water for the proposed project, such that the proposed project will maintain the current permitted amount (lbs/day) of TDS in the effluent. The decrease in effluent concentration will beneficially affect the receiving waters.

### Response to Comment 15-3

*Commentor asserts that the proposed project will jeopardize endangered species.*

The commentor raises concerns about impacts upon endangered species generally, but does not identify particular species of concern. Section 4.8 (Biological Resources) of the Draft EIR addresses potential impacts to special status and listed species, including special status fish species, associated with plant expansion and increases in effluent discharges to Old River. Master Response Section A(3)(f) discusses at length the proposed project's potential impacts upon listed fish species, and the mitigation measures that the City is adopting to ensure that the project will not reduce the number or

restrict the range of any listed species. The Final EIR incorporates avoidance and mitigation measures that mitigate all potential impacts to endangered species to a less than significant level.

**Response to Comment 15-4**

*Commentor states that the Clean Water Act does not contemplate "in lieu" mitigation.*

Commentor does not define what is meant by "in lieu" mitigation, or explain how this concept applies to the Draft EIR. Comment noted. The Final EIR for this project serves as an environmental disclosure document and provides mitigation measures for environmental effects.

**Response to Comments 15-5 and 15-6**

*NPDES Permit/Land Application Alternatives.*

The Commentor's opinion that the proposed project's discharge will not receive an NPDES permit is noted. As described in Draft EIR Section 6.0 (Alternatives to the Project) and Master Response Section C, Land Application Alternatives (*i.e.*, reuse or reapplication of recycled water) were evaluated in the Draft EIR.

Detailed responses to the Commentor's summary of points are provided in Responses to Comment 15-7 through 12.

**Response to Comment 15-7**

*Commentor states that the monitoring sites considered in the Draft EIR water quality analyses are not representative of the actual water quality in Old River near the point of discharge.*

Master Response Section A(1)(a) provides the data collected pursuant to the City's current NPDES permit for the period January 2000 through December 2001 for dissolved oxygen, electrical conductivity, pH and temperature near the proposed point of discharge. Master Response Section A(1)(a) also explains that, while the data collected pursuant to the City's current NPDES permit is useful for baseline purposes, that data has little relevancy for the purpose of predicting the water quality of the proposed project's effluent. This is because the proposed project will discharge tertiary treated water, while the current data reflects the current wastewater treatment plant's secondary treated water.

*Commentor requests analysis of TDS impacts at Decision 1641 monitoring sites.*

In response to the request to analyze TDS impacts at Decision D-1641 monitoring sites in the South Delta, additional far field modeling was performed to determine the impact of the proposed project at those locations. Master Response Section A(1)(f) provides an extended discussion of the results of this modeling. In summary, the proposed project will decrease the TDS concentrations at the Decision 1641 monitoring sites under any of the barrier configurations (Master Response Section A(2)(a)).

## 2.0 COMMENTS AND RESPONSES

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### Response to Comment 15-8

*Commentor asserts that the project violates the Clean Water Act because it is a new or expanded discharge into an impaired waterbody.*

As described below, the City is not a “new discharger” because: (1) the City commenced the discharge of pollutants at the “site” prior to August 13, 1979, (2) the City’s expanded facility is not a “new source” as defined in 40 C.F.R. §§ 122.2 and 122.29, and (3) the City has received a finally effective NPDES permit for discharges at the existing “site.”

40 C.F.R. § 122.2 defines “new discharger” to include any building, structure, facility, or installation:

- (a) From which there is or may be a “discharge of pollutants;”
  - (b) That did not commence the “discharge of pollutants” at a particular “site” prior to August 13, 1979;
  - (c) Which is not a “new source;” *and*
  - (d) Which has never received a finally effective NPDES permit for discharges at that “site.”
- 40 C.F.R. § 122.2.

Given that the City is, and will be, engaged in the “discharge of pollutants,” the three remaining factors set forth in 40 C.F.R. § 122.2 are critical to determining whether the City is a “new discharger.” Importantly, unless the City satisfies each and every factor set forth above, the City is not a “new discharger.”

*1. The City Commenced the “Discharge of Pollutants” at a Particular “Site” Prior to August 13, 1979.*

The term “site” is defined as “the land or water area where any ‘facility or activity’ is physically located or conducted, including adjacent land used in connection with the facility or activity.” [40 C.F.R. § 122.2]. Federal regulations define “facility” inclusively to be “any NPDES ‘point source’ or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.” *Id.* The term “point source,” covers any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, or discrete fissure. *Id.* Taken together, the broad definitions of “site” and “facility,” suggest that the EPA intended “site” to include not only a particular point source outfall, but the entire treatment facility, and all related infrastructure and land. Thus, the additional flow proposed by the City is an integral part of an existing “site,” rather than a new, independent site.

The City has been engaged in the process of collecting, treating, and discharging wastewater since 1976. Therefore, the City commenced the discharge of pollutants at the “site” prior to August 13, 1979.

2. *The City is Not a "New Source."*

40 C.F.R. § 122.29 sets forth the criteria for "new source" determination. Pursuant to that section, a source is a "new source" if it meets the definition of "new source" in 40 C.F.R. § 122.2 and:

- (a) it is constructed at a site at which no other source is located;
- (b) it totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or
- (c) its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Director shall consider such factors as the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source.

See 40 C.F.R. § 122.29(b)(i-iii).

None of these criteria apply to the proposed project. The City's expansion and upgrade of its existing wastewater treatment facility is not being constructed at a site at which no other source is located. Additionally, the expansion and upgrade of the City's existing wastewater treatment facility does not totally replace the existing treatment plant's processes, as the existing treatment facility will continue to provide secondary treatment to influent. Finally, the City's expansion and upgrade of its wastewater treatment facility is not substantially independent of the City's existing treatment facility, as the expansion and upgrade is integrated with, and dependent upon, the existing plant, and is engaged in the same type of activity as the City's existing wastewater treatment facility. Thus, the City is not a "new source" as defined in 40 C.F.R. §§ 122.2 and 122.29.

3. *The City Has Received a Finally Effective NPDES Permit for Discharges at the Existing "Site."*

On May 10, 1996, the Regional Board adopted Order No. 96-104, NPDES No. CA0079154, a NPDES permit regulating the City's discharge of treated effluent to Old River. Thus, the City already has NPDES permit for its existing wastewater treatment facility and therefore, is not a "new discharger" under 40 C.F.R. § 122.2.

In sum, the City does not satisfy three of the four criteria necessary to be considered a "new discharger." Therefore, the City is not subject to the requirements applicable to "new dischargers."

## 2.0 COMMENTS AND RESPONSES

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### Response to Comment 15-9

*Commentor alleges that any increase in the discharge of identified impairing pollutants unreasonably affects beneficial uses and exceeds applicable water quality objectives.*

The State Water Resources Control Board ("State Board"), in its March 2001 decision in the Tosco case (Water Quality Order [WQO] 2001-06), rejected Commentor's presumption. The State Board stated that ambient water quality data must be analyzed for each listed pollutant to address the question of assimilative capacity.

*Commentor states that the proposed project violates state and federal antidegradation policies.*

Master Response Section A(2) discusses in detail the basis for the City's determination that the terms of the state and federal antidegradation policies are inapplicable as significance thresholds, and also conclude that the proposed project complies with the federal and State antidegradation policies. The Commentor correctly states that the existing SWRCB guidance (APU 90-004) requires Regional Board's to perform an antidegradation analysis in its permitting process for any permit which would allow an increased discharge to surface waters. A requirement to perform an antidegradation analysis does not imply that a project violates the antidegradation policy, however. The information presented in the Draft EIR will allow Regional Board staff to reach a determination of consistency with the state and federal antidegradation policies.

### Response to Comment 15-10

*Commentor states that the proposed project will further impair water quality.*

As described in the FEIR and in Master Response Section A, the proposed project will actually marginally improve water quality in the Delta. The following discussion summarizes the analysis for each constituent.

#### a) Copper.

*Commentor refers to data collected in the San Joaquin River at Vernalis, where a maximum dissolved copper concentration of 8 ug/l and a minimum hardness of 32 mg/l as CaCO<sub>3</sub> was observed. Commentor implies that this data indicates a significant copper toxicity problem. Commentor states that the analysis must not be based on median values and must consider additive effects of copper and zinc.*

Master Response Section A(3)(c) addresses the proposed project's impacts to copper in detail, and summarizes the basis for the City's determination that the proposed project's impact upon acute or chronic copper toxicity are less than significant. The toxicity of a particular copper concentration must be evaluated within the context of the water's hardness, as the hardness of the water affects the toxicity of any copper concentration. The data cited by commentor is not representative of copper concentration and hardness in the San Joaquin River. In fact, the dissolved copper data for the San Joaquin River at Vernalis cited by commentor indicates compliance with hardness-adjusted copper

objectives in all cases except the one data point (cited by the commentor). Further use of a minimum observed hardness value as the assumed value for all compliance evaluations is neither reasonable nor scientifically defensible. In addition, it is not proper to characterize a water body as impaired for any pollutant based on the results from one or two sampling results, especially where those results are uncharacteristic in comparison with the remainder of the data set.

Taken in total, the data selection, analytical approach and characterizations of existing water quality advocated by the commentor in this and later comments would lead to a distortion of the analysis and findings presented in the Draft EIR. The advocated use of multiple, non-coinciding worst-case data points as the primary basis for analysis is outside the bounds of reasonable analytical methods and data selection. Master Response Section A(1)(d) and Master Response Section A(1)(f)(iii) address the shortcomings of an analysis that ignores median values and defines worst case scenarios according to multiple, non-coinciding worst case data points.

*Commentor suggests that the analysis of the proposed project's copper impacts must consider the additivity of copper and zinc.*

The "additivity" of copper and zinc at the dissolved levels present in the effluent or in Old River is an unproven allegation, unsupported by technical evidence or references. An important factor that must be considered in an assessment of additive toxicity is the exposure concentration of the pollutants in question. As noted in the USEPA Technical Support Document for Water Quality-based Toxics Control (USEPA, 1991), additivity does not typically occur at chronic or sub-chronic concentrations. Based on the projected copper and zinc concentration data for the proposed project, additive toxicity of these pollutants is not anticipated. The Central Valley Basin Plan notes that additivity may occur for carcinogens or other toxicants that have a similar mode of toxicity. Neither copper nor zinc is listed as a carcinogen. Information has not been presented to indicate that the mode of action of copper and zinc toxicity is similar. Finally, the claim of additive toxicity fails to account for the reduction of copper toxicity (and possibly zinc toxicity) due to complexation in natural waters (effect of the water effect ratio).

b) *Bis (2-ethylhexyl) phthalate.*

*Commentor states that the concentration of bis (2-ethylhexyl) phthalate in Tracy's effluent has been measured at a level of 79 ug/l. Commentor cites various criteria values for this pollutant, including the California Primary MCL of 4 ug/l, the USEPA Primary MCL of 6 ug/l, the CalEPA Cancer Potency Factor as a drinking water level of 12 ug/l, the USEPA IRIS value of 3 ug/l, and the USEPA Drinking Water Health Advisory (SNARL) of 3ug/l. Commentor asserts that no assimilative capacity for this pollutant exists in the San Joaquin River.*

Commentor's discussion of the current effluent's concentration of Bis (2-ethylhexyl) phthalate is not relevant to assessing the impacts of the proposed project (upgrading the current treatment facility from secondary to tertiary treatment). In addition, the criteria values cited by Commentor, inappropriate for evaluation of significance as the values pertain to requirements for tap water rather than discharges into surface waters, are all less stringent than the human-health based criteria derived from the CTR used by the City to evaluate impacts of the proposed project (see Master Response

## 2.0 COMMENTS AND RESPONSES

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Section A.(3)(e) and Table 2-10). Finally, the Delta Waterways are not identified as impaired by Bis-2 on the 303(d) List. Given the water quality improvement as a result of the City's upgrade of its treatment facility from secondary to tertiary treatment (*i.e.*, a reduction in Bis-2 concentration), the non-impaired status of the Delta Waterways, and data reflecting compliance with the values cited by Commentor, the assertion that no assimilative capacity exists in the receiving waters is irrelevant and without foundation.

c) *Electrical Conductivity.*

*Commentor states that electrical conductivity (EC) levels at Bowman Rd in the San Joaquin River range included values of 821, 828, 1026 "mg/l" [should read "umhos/cm"]. The commentor states that the Draft EIR is deficient for failing to assess EC levels in the Old River in the vicinity of the project outfall.*

The EC levels in the San Joaquin River at Bowman Road are not pertinent to the City's impact evaluation, since the City's effluent has no effect on that reach of the San Joaquin River.

As described in Master Response Tables 2-3, 2-4 and Section A(2)(a) the City determined the proposed project's impact upon EC and TDS concentrations are less than significant. Nonetheless, to address long term regional environmental goals that go beyond the standards of CEQA, the City has committed to decreasing the TDS concentrations in the source water for the proposed project, such that the proposed project will maintain the current permitted amount (lbs/day) of TDS. By doing so, the concentration of TDS will be reduced in the effluent discharged, and therefore, a slight reduction in the receiving water is also expected. As a result, because EC correlates linearly with TDS [EC = TDS mg/l x 1.75], the proposed project will actually decrease EC levels in the receiving waters.

d) *Total Dissolved Solids.*

*Commentor notes that the South Delta is 303(d)-listed for TDS and that the secondary MCL for TDS is 500 mg/l (recommended), 1,000 mg/l (upper level) and 1,500 (short-term maximum). Commentor also notes that the recommended agricultural water quality goal is 450 mg/l as a long-term average. Commentor points out that an effluent concentration of 1,000 mg/l exceeds some of these values and that the project represents an increase in mass loading of impairing pollutant.*

See Response to Comment 15-10(c).

e) *Temperature.*

*Commentor states that the CALFED EIR/EIS has indicated that temperature levels in the mainstem of the San Joaquin River from Merced to Vernalis often exceed stressful or lethal levels for migrating Chinook salmon. Commentor states that increased water temperature is one of the principal causes of declining Chinook salmon populations in the San Joaquin River. Commentor states that juvenile salmon show signs of adverse effects at 65 degrees and that migration of adults is usually delayed when temperatures reach 70 degrees F. Commentor states that adult mortality may occur at 72 degrees F. Commentor cites data developed by the City of Stockton that indicates*

*that temperature in the San Joaquin River at Bowman Rd [between Mossdale and Stockton] reaches 74.3 degrees F in September. Commentor cites Department of Water Resources data that indicates that temperatures in Old River at the Delta Mendota Canal barrier reach 72 degrees F. Commentor asserts that there is no remaining assimilative capacity for temperature in Old River. Commentor notes that the Thermal Plan only addresses temperature increments, and does not address whether the temperature in the river is elevated to the point of being harmful to salmonids.*

See Master Response Section A(2)(f) for an in-depth analysis and response to concerns regarding temperature impacts of the proposed project. That analysis indicates that the proposed project's thermal impacts will be minimal, short in duration (a few hours), and will only occur in the Spring or Fall. When considered in light of the presence or absence of species that might be affected by such a minimal thermal impact, the City found that a significant impact was unlikely. Nonetheless, the City recognizes that the complexity of the tidal flows and the barriers, along with the absence of detailed monitoring data to reflect thermal impacts of such limited magnitude, make it possible that some significant impact to fish may nonetheless occur. Accordingly, Master Response Section A(2)(f) provides mitigation that reduces the potential impact to a level less than significant.

f) *Dissolved Oxygen.*

*Commentor states that oxygen levels in Old River and Middle River are below Basin Plan objectives, citing data obtained from the Department of Water Resources, 2000. Commentor asserts that the proposed project will increase the mass loading of oxygen demanding constituents that will exacerbate low dissolved oxygen conditions in the San Joaquin River (in the vicinity of Stockton) Old River and the South Delta. Commentor alleges that any increase in oxygen demand constituent loading violates state and federal antidegradation requirements.*

Master Response Section A(3)(d) and Master Response Section 2.B address the proposed project's impacts upon dissolved oxygen. In summary, the proposed project will actually significantly reduce the discharge of oxygen demanding constituents as a result of the proposed project's upgrade of the treatment facility from secondary to tertiary treatment. Thus, proposed project is expected to beneficially affect the receiving water's dissolved oxygen concentration.

As explained in Master Response Section A(3)(b) the City analyzed the impacts of the proposed project upon the Stockton Deep Water Ship Channel, but chose not to include that data within the Draft EIR because the analysis demonstrated that the proposed project's impacts were negligible.

The commentor's statement regarding the violation of the antidegradation policy requirements is incorrect on two fronts. Master Response Section A(2)(c) explains the limited applicability of the state and federal antidegradation policies upon the proposed project. Second, as noted above, the proposed project will reduce, rather than increase, the load of oxygen demanding constituents to the receiving waters.

## 2.0 COMMENTS AND RESPONSES

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g) *Mercury.*

*The commentor notes the 303(d) listing (for mercury) in the Delta. The commentor points to elevated levels of mercury in catfish and largemouth bass in the San Joaquin River as support for the 303(d) listing in that water body. The commentor states that the CTR criterion of 50 nanograms per liter (ng/l) fails to consider the long-term bioaccumulative effects of short-term elevated mercury in water. The commentor alleges that any increase in mercury mass loading to the Delta will degrade existing water quality and repeats the claim that such increases would be prohibited by USEPA regulations and the antidegradation policies. The commentor contests the statements in the Draft EIR that a future TMDL will remedy existing mercury loading problems. The commentor alleges that the proposed project will have significant impacts and will place increased financial burden on existing dischargers.*

The implication that the CTR mercury objective of 50 ng/l adopted in May 2000 does not consider bioaccumulative effects is erroneous. The current 50-ng/l objective is specifically intended to be protective of human health, considering the potential for mercury to bioaccumulate in fish [see 40 C.F.R. 131.38(b)]. It is inappropriate to speculate on future water quality standards for mercury that may or may not be adopted by USEPA as the basis for this CEQA analysis.

The Commentor repeats the allegation that an increase in mercury loading to the 303(d)-listed Delta is prohibited by federal and state antidegradation policies. See Master Response Section A(2)(c) and Response to Comment 15-8, which refute this position.

While Commentor is correct that the Delta Waterways are listed as impaired for mercury on the State's 303(d) list (source identified in the State's 303(3) list is "resource extraction" (i.e., abandoned mines)), the City's proposed project will not detrimentally affect mercury concentrations in Old River. As stated in Tables 2-3 and 2-14, the City expects the concentration of mercury to be decreased as a result of the proposed project, thereby beneficially affecting the concentration of mercury in the receiving waters. Furthermore, the City's expected mercury concentration will be well below the CTR criteria (expected effluent concentration is 10 ng/l while the CTR criteria is 50 ng/l). The City recognized, however, that even with the expected decrease in concentration, the increased flow might result in a slight increase in mass (from 0.0011 lbs/day to 0.0013 lbs/day). See Master Response Section B. for a discussion of the TMDL program and the cumulative impact of this slight increase in mass. From a practical standpoint, the estimated annual mercury load from the proposed project is 0.2 kilograms per year, which is approximately 0.04 percent of the total active mercury loading to the Delta (estimated to be approximately 450 to 500 kg per year (SRWP, 2000). Available information from the June 2000 Mercury TMDL report prepared by the San Francisco Regional Water Quality Control Board suggests that the time scale of change of levels of mercury in sediment and fish tissue in the Bay and Delta is on the order of decades or centuries. It is therefore evident that the trivial mercury loading associated with the proposed project has no significant effect on near-term or long-term fish tissue levels in the Delta Waterways.

*h) Organophosphate Pesticides.*

*Commentor notes the 303(d) listing of the San Joaquin River and Delta for diazinon and chlorpyrifos for Delta waterways. Commentor alleges a connection between declines in fish populations and phytoplankton and zooplankton populations to acute toxicity, presumably caused by diazinon and chlorpyrifos. Commentor also alleges that the proposed discharge will contain levels of diazinon and chlorpyrifos that are harmful to the Delta. Commentor asserts that diazinon and chlorpyrifos are additive in effect and that they interact synergistically with atrazine and other triazine herbicides that are typically present in the San Joaquin River. Commentor repeats its allegations that (1) increased loadings of an impairing pollutant are prohibited by state and federal regulations, (2) any increase in impairing pollutants would violate antidegradation policies, (3) increased loadings of listed pollutants would impose additional hardship on existing dischargers to comply with wasteload and load allocations resulting from a future TMDL, (4) the future TMDL cannot be relied upon to resolve the 303(d) listed problem, and (5) the Draft EIR is deficient for failing to address the impacts of the proposed project on diazinon and chlorpyrifos impairment.*

As discussed in the Draft EIR, it is not known whether the proposed tertiary treated effluent discharge from the City will contain (a) detectable levels of diazinon or chlorpyrifos or (b) levels which would exceed toxicity threshold concentrations. It is therefore not possible to speculate on the impacts of the discharge pertaining to these pollutants. However, the City will continue to aggressively implement its source control program to minimize the quantities of pesticides and other pollutants in its influent. The City will also implement treatment improvements such as are part of the proposed project that will result in the removal of increasing concentrations of organic pollutants through biodegradation and volatilization. As a result, there is no evidence that the proposed project's discharge will result in any increase in levels of diazinon or chlorpyrifos in the effluent or in the receiving water. See also Response to Comment 1-1(A)(3) and 1-1(B) (demonstrating the City's current and expected future compliance with acute and chronic whole effluent toxicity testing.

The commentor's statements regarding additive and synergistic effects of organophosphate pesticides and other pesticides are misleading. The occurrence of additive or synergistic effects is primarily a function of the concentration of the pollutants in question. Lower concentrations produce lower probability of such interactive effects. The uncertainty regarding the presence of diazinon and chlorpyrifos in the proposed discharge reduces the allegation of additive or synergistic effects to speculation.

The allegations linking diazinon and/or chlorpyrifos toxicity to declines in Delta fish populations are not supported by citation to facts or references. Ongoing work by groups such as CALFED has not established the alleged effects in the Delta.

The response to the repeated general allegations regarding 303(d) listed pollutants and assimilative capacity are the same as those given under Master Response Section A(2)(a) through (c) and Response to Comments 15-8, 15-9 and 15-10.

## 2.0 COMMENTS AND RESPONSES

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### i) Toxicity.

*Commentor notes the 303(d) listing of the San Joaquin River and Delta for unknown toxicity. Commentor makes reference to statements in "the Tentative Permit" regarding the allowance of toxicity within a mixing zone. Commentor alleges that substantial toxicity is likely to be caused by the mixture of high temperature, ammonia, low dissolved oxygen, and elevated metal and organic chemicals in the effluent. Commentor cites USEPA regulations (40 CFR 122.44(1)(i)) as the basis for its allegation that "the permit" must contain effluent limits for whole effluent toxicity. Finally, Commentor alleges that the San Joaquin River has no remaining assimilative capacity for toxicity, based on the 303(d) listing for unknown toxicity. Commentor repeats the allegation that mixing zones are not allowed in impaired (i.e. 303(d) listed) water bodies.*

The Draft EIR states that the Delta waterways are 303(d)-listed for unknown toxicity. As noted previously, the proposed discharge will occur in the Delta, downstream from the San Joaquin River at Vernalis; therefore, the 303(d) listing for the San Joaquin River is not directly relevant to the proposed project.

The comments regarding the "Tentative Permit" and the "permit" are not clear. However, the City responds to Commentor's concerns regarding toxicity by referring Commentor to Master Response **Table 2-4** (demonstrating compliance with stringent acute and chronic criteria) and Response to Comment 1-1 explaining the basis for the City's determination that the proposed project's impacts upon toxicity in the receiving water are less than significant.

The response to the repeated allegations regarding 303(3) listed pollutants, assimilative capacity, and mixing zones are the same as those given under Master Response Section A(a) through (c) and response to Comments 15-8, 15-9, and 15-10.

### j) Cumulative Effects.

*Commentor states that the Draft EIR fails to analyze cumulative impacts because too many variables exist. Commentor asserts that the Draft EIR should state that an NPDES permit with increased loadings is unlikely. Commentor notes concern that high temperatures, low dissolved oxygen, and an assortment of organic and inorganic toxics will create impacts far beyond effects of a single pollutant.*

See Master Response Section 2.B for a discussion of the proposed project's cumulative impacts.

*Commentor asserts that increased mass loading of 303(d) pollutants will exacerbate water quality conditions.*

This comment does not specify which non 303(d) pollutants are of concern. See Master

*Commentor stated that the Final EIR failed to acknowledge additive or synergistic interactions of multiple stressors on impaired ecosystems and repeats the assertion that copper and zinc are additive.*

The comment implies that the interactions between multiple pollutants at the concentrations observed in the Delta waterways are well understood. However, the comment does not provide references or definitive information to corroborate the allegation that multiple stressors in the Delta aquatic system act in an additive or synergistic (i.e. more than additive) fashion. Information contained in the USEPA Technical Support Document for Water Quality-based Toxics Control (USEPA, 1991) suggests that additivity or synergism would not be expected in natural waters when pollutants are present at chronic or sub-chronic levels as exists in the Delta for all trace metals and most other toxic pollutants. The Central Valley Basin Plan states that carcinogens may exhibit additive toxicity. The Basin Plan also states that some toxicants may be additive if they have a similar mode of action to produce toxicity. However, no information has been produced by the commentor, or in the course of preparing the EIR, to demonstrate that the proposed tertiary effluent from the project and/or Old River will contain pollutants at concentrations that exhibit additivity in the Delta waterways.

### Response to Comment 15-11

*Commentor states concerns regarding the proposed project's impacts upon Central Valley steelhead, Delta smelt, Sacramento splittail, winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Fall/late-fall-run Chinook salmon.*

Section 4.8 (Biological Resources) of the Draft EIR and Master Response Section A(3)(f) discuss in detail the proposed project's impacts upon the special-status and listed fish species identified by the commentor. As described under Impact 4.8.4, significant impacts to fisheries from discharges would be limited to temperature increases at the edge of the mixing zone. Implementation of Mitigation Measure MM 4.8.4b would reduce the temperature impact to less than significant. This mitigation measure consists of performance standards consistent with the requirements of CEQA Guidelines Section 15126.4(a)(1)(B).

### Response to Comment 15-12

*The commentor states that model output can be dramatically altered by changes in data, coefficients, or assumptions. Commentor alleges the improper use of an uncalibrated and unverified model and states that the model is inaccurate in predicting real world levels of toxics. The commentor states that the CORMIX model used in the Draft EIR in the near field analysis was not approved by USEPA.*

The allegations and opinions stated by the commentor regarding the validity of the modeling tools and the modeling results are unsubstantiated. The Draft EIR and Master Response Section A(1)(f) describes the models used in the surface water quality analysis. These models have been calibrated and validated through checks of predicted values against observed values for various parameters (*see* Appendix G of Draft EIR). The models used (RMA and CORMIX) are recognized by the Bay-Delta modeling forum and USEPA to be valid tools for water quality analysis. The RMA hydrodynamic and water quality models used in the far-field analyses have been employed in numerous Delta and Bay applications. Results from the RMA models compare favorably to results obtained using other commonly applied Delta models (*e.g.* Fischer Delta Model and DWR models). Sensitivity analyses

## 2.0 COMMENTS AND RESPONSES

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have been performed to compare the results from the CORMIX plume model against other more recently developed USEPA plume models. Results of this comparison have been favorable.

*Commentor asserts that the worst-case condition was not modeled.*

Master Response Section A(1)(f)(iii) provides the basis for the City's reliance upon reasonable worst-case scenarios.

*Commentor alleges that the CORMIX model is inappropriately applied in the analysis of the proposed discharge (due to tidal effects).*

The Draft EIR correctly defines the minimum gross dilution (discharge rate versus river flow) by the minimum river flow and maximum discharge rate. In the very near field, under-predicting dilution results in a higher temperatures/concentration further from the port with a corresponding reduction in area encompassed by the plume (conservation of heat/mass). The reverse is true for over-predicting dilution. Inaccuracies in predicting the rate of dilution simply move the location of the critical condition but have little effect on the magnitude of the affected area / volume. Commentor alleges that the accuracy of the CORMIX model is +/- 50 percent. Even if that allegation were true, the fundamental impact analysis would remain unchanged. The net effect of a 50 percent change in model accuracy would be to move the location of the 1° F threshold up or down the river by several feet, which is not significant in the context of this CEQA analysis.

*Commentor requests a copy of the Session Report and Prediction File for the CORMIX modeling effort.*

The reports requested by the commentor are voluminous. Consequently, the City concluded that it was appropriate to include a summary of the conclusions that arose from that data. The results from the CORMIX model are scientifically defensible and are supported by the information in the subject reports and files.

*Commentor raises a question regarding interferences between the two diffusers and requests an analysis of changing bottom "topography."*

CORMIX modeling was used in the manner necessary to obtain the most conservative result (*i.e.*, the largest zone of initial dilution) given the configuration of the diffusers. Specifically, the modeling used a single port. This approach has been used in compliance with the CORMIX author's recommendation. The following is an excerpt from a typical slot model session report.

"CORMIX2 uses the TWO-DIMENSIONAL SLOT DIFFUSER CONCEPT to represent the actual three-dimensional diffuser geometry. Thus, it approximates the details of the merging process of the individual jets from each port/nozzle. In the present design, the spacing between adjacent ports/nozzles (or riser assemblies) is on the order of, or less than, the local water depth so that the slot diffuser approximation holds well.

Nevertheless, if this is a final design the user is advised to use a final CORMIX1 (single port discharge) analysis, with discharge data for an individual diffuser jet/plume in order to compare to the present near-field prediction.”

All ports were assumed to be directed downstream in the CORMIX analysis.

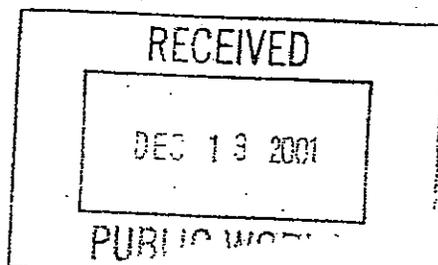
With regard to the topography of the channel bed, the river bottom at the outfall site is uniform and straight and no scour holes are evident or expected in the area of the proposed diffuser. Armoring of the outfall for outfall integrity would preclude scour holes within the length of the initial mixing zone (less than 50 feet). This smooth bottom condition leads to a larger mixing zone than would occur with a bottom condition with a scour hole below the outfall. The bottom condition analyzed therefore provides a conservative view of the impact of the discharge (because the larger mixing zone requires consideration of potential impacts further from the diffuser.

*Finally, the commentor asks how multiple dosings and slack water flow conditions were addressed.*

*See Response to Comment 1-1, addressing multiple dosing and slack water flow conditions.*



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Steve Bayley  
City of Tracy Public Works Dept  
520 Tracy Blvd  
Tracy, CA 95376

6 December 2001

RE: Tracy Wastewater Treatment Plant Expansion Draft EIR

Mr. Bayley:

The Mother Lode Chapter of the Sierra Club submits the following comments on the Draft Environmental Impact Report (DEIR) for the Tracy Wastewater Treatment Plant Expansion. We incorporate by reference the comments of the California Regional Water Quality Control Board, DeltaKeeper, and the South Delta Water Agency. We agree with these other parties that the DEIR is grievously deficient because it fails to adequately identify and mitigate water quality and biological, including fishery, impacts.

16-1

In addition, the DEIR analysis of land use and agricultural resources fails to adequately describe and mitigate key potential impacts of the project. In particular, the DEIR is curiously silent on impacts related to construction of pipeline crossings of private agricultural lands and Paradise Cut.

16-2

Draft EIR Analysis Must be Amended and Recirculated

The omissions of analysis and mitigation of key environmental issues, and use of incomplete data warrant the amendment and recirculation of the DEIR. The California Environmental Quality Act (CEQA) requires preparation of additional analysis and recirculation of an EIR when a lead agency adds "significant new information" to the EIR (Public Resources Code 21092.1 and subsequent case law). Certainly, the lack of complete data regarding waste discharge impacts to the Old River, as documented in the California Regional Water Quality Control Board, DeltaKeeper, and South Delta Water Agency comments, and the new analysis to cover previously neglected topics (e.g., impacts and mitigation of pipeline crossings of agricultural lands and the Paradise Cut) constitute "significant new information." The law requires that the "same critical evaluation that occurs in the draft stage" must be given for the new information so that the public is not denied "an opportunity to test, assess, and evaluate the data and make an informed decision as to the validity of the conclusions to be drawn therefrom" (*Sutter Sensible Planning, Inc. v. Board of Supervisors* (3<sup>rd</sup> Dist. 1981) 122 Cal.App.3d 813, 822).

Project Description

There are at least seven major environmental issues that are not addressed adequately in the Project Description and, thus, the subsequent DEIR analysis fails to identify potential impacts and ensure that they are adequately mitigated to a "less-than-significant" level. The DEIR is a "project" level environmental analysis, which means that no further environmental is supposed to take place before the project goes to construction. The following deficiencies in the Project Description must be remedied:

1. Pipeline alignment. The Project Description notes that construction of the proposed outfall pipeline will follow the rights-of-way of existing roads, but fails to describe the portion of the pipeline route north of Delta Avenue which crosses private farmland, then somehow crosses Paradise Cut (a major south Delta waterway); then crosses more private lands, and then ends with the outfall in the Old River, 800 feet from the existing outfall. The map of the new pipeline alignment (Figure 3-9) indicates that the new pipe does not follow the right-of-way of the existing pipe (Figure 3-5):

16-3

What agricultural properties will be crossed by the proposed outfall pipeline north of Delta Avenue? How will the City acquire this right-of-way? What crops are currently grown and how much right-of-way must be taken for the pipe?

2. Paradise Cut. How will the crossing of the Paradise Cut waterway by the outfall pipe be accomplished? Jack and bore drilling underneath the waterway? If so, what are the potential impacts associated with drilling under Paradise Cut? An above-ground crossing? If so, will an above ground crossing affect boat traffic or habitat? (The Biological Resources section refers to "microtunneling." If this is the technique being proposed, it must be described in detail in Project Description, with drawings.)

16-4

3. Impacts to Levees. How will the pipeline affect the existing levees along the Paradise Cut and Old River? The Project Description must be amended to include at least some conceptual engineering drawings that indicate how the construction of the pipeline would affect the levees. Will the pipe be trenched through or underneath the levees? Will it cross on top of the levees? What construction techniques are proposed, and what potential impacts, e.g., to biological features and flood safety, could these construction activities cause if not mitigated?

16-5

4. NPDES and WDR permits. The Project Description fails to describe what types of permits are being requested from the Regional Board. Our understanding is that the City has requested, and will receive a tentative, National Pollution Discharge Elimination System (NPDES) permit, in the short term, which does not take into account the expansion plans outlined in this DEIR. For the expansion, the City must receive an updated Waste Discharge Requirement (WDR) permit (an updated NPDES) from the Board before the City can proceed with the second phase of construction. Is this correct? Has the City begun the process of requesting an updated NPDES permit from the Regional Board based on the expansion plans? If not, why hasn't the City begun

16-6

the process, when this DEIR is being reviewed?

The Project Description must be amended to describe the sequence of permitting that is required AND what criteria will be used by the Board to grant the two permits. Then, the criteria that is used to grant the permits must be analyzed against the plant characteristics to determine if the plant would qualify for the two permits.

16-6

5. Data on Plant Effluent. The Project Description fails to describe the specific characteristic of the effluent that is projected from planned plant expansion, as noted in the comments received from the Regional Water Quality Control Board staff. Does the plant expansion include denitrification?

16-7

6. Land Disposal? The Project Description fails to discuss why land disposal alternatives have not been studied. (see Alternatives below).

16-8

7. County Permits. The Project Description fails to discuss the other types of permits that may be required from San Joaquin County. The City is proposing construction in the unincorporated area. In addition to an encroachment permit to excavate within the road rights-of-way, a grading permit and preparation and approval of an Improvement Plan under the County planning regulations. (Development Title) may be required. The Project Description must be amended to discuss all permit requirements from the County. The Land Use section cannot make the unsubstantiated claim that the project is consistent with the County General plan and applicable ordinances unless the permitting requirements are clearly discussed.

16-9

Land Use and Agricultural Impacts Are Not Identified or Mitigated

As noted above, because the Project Description fails to even discuss the alignment of the outfall pipeline through private agricultural lands north of Delta Avenue (and north of Paradise Cut), the Land Use analysis fails to identify and mitigate impacts to existing ag operations. How long will construction (trenching?) of the pipeline through ag land take? How much land, if any, will be taken temporarily or permanently out of agricultural production?

16-10

Biological Impacts to Protected Species are Ignored.

The Biological Resources section of the DEIR is grossly deficient because it does not identify potentially significant impacts to habitat and species due to construction of the outfall pipeline north of Delta Avenue. The analysis also fails to quantify potential impacts to aquatic resources, including endangered fish, in either the Old River or Paradise Cut, due to discharge of effluent.

16-11

For example, the text states that the project will cause no impacts to Swainson's hawk, a grossly unsubstantiated claim, especially since the map of hawk occurrences show an existing nest site exactly on the pipeline route just north of Delta Avenue! (Figure 4-3.2). Also, the discussion should make clear that

potential impacts to Swainson's hawk or any other sensitive species cannot be mitigated through payment of a per acre fee to the San Joaquin County Open Space and Habitat Conservation program, since this part of the County is not included in the area that is covered by the incidental take permit.

The DEIR notes that the effluent violates that standards of the Thermal Plan, but offers no concrete mitigation to reduce thermal affects on fish species (page 4.8-25). The half-hearted attempt at mitigation for endangered fish in Old River that could be affected by the diffuser construction (Measure 4.8.4a) calls for preparation of a Fish Rescue Plan, but does not specify exactly what criteria should be included in the plan, what the plan would accomplish, or which agency would approve or implement the plan.

16-12

In the Water Quality section, Mitigation Measure 4.6.1 responds to the impact of water temperature by stating that, as part of consultation with State and Federal agencies, "a Mitigation Plan shall be prepared that includes measures to avoid or mitigate long-term thermal impacts to fish species..." The mitigation plan is required to be developed as part of this "project" EIR!

Similarly, Mitigation Measures 4.8.5a, b, and c simply state that a wetland delineation should be done later on, and permits will be required from the Army Corps of Engineers and State Fish and Game. Mitigation measures that seek to mitigate potential impacts by simply stating that a permit is required from a State or Federal agency is not mitigation, since the permit requirements apply to all projects if they impact jurisdictional waters.

16-13

The Biological Resources analysis is inadequate on its face because the effects of all relevant components of the anticipated effluent discharge by the plant have not been identified in either the Water Quality or Biological Resources sections of the DEIR (see summary of comments submitted by the California Regional Water Quality Control Board under Water Quality, below).

16-14

The potential impacts to endangered fish cannot be lessened to a "less-than-significant" level by preparing vaguely defined plans or future mitigation programs based on future permitting from wildlife or trustee agencies. Such deferral of adequate impact identification and mitigation is illegal under the existing CEQA statutes, guidelines, and recent case law (see below).

#### Water Quality

We agree with the specific comments submitted by the California Regional Water Quality Control Board staff which cast grave doubts on the legal adequacy of the water quality analysis and computer modeling in the DEIR. The Board staff has severely criticized the DEIR for the following serious deficiencies:

16-15

- failing to adequately address tidal action and acute toxicity of the discharge effluent;
- failing to use data on temperature of effluent based on the Tracy plant, instead of the Manteca plant,
- failing to recommend a detailed biological assessment and mitigation for temperature impacts, with

credible compliance mechanism;

- failing to include data for trace organics, for failing to address impacts of total dissolved solids;
- failing to evaluate impacts from electrical conductivity;
- failing to forecast nitrate levels in the effluent resulting from the nitrification process;
- failing to address Total Maximum Daily Loads, and instead assuming that future TMDL programs could mitigate cumulative effects.

16-15

The comments of DeltaKeeper and South Delta Water Agency offer further specific criticism of the DEIR's failure to accurately document existing water quality conditions for several constituents in the vicinity of the proposed discharge, as well as the failure to accurately characterize potential impacts of the discharge according to existing State and Federal laws and regulations. We will not repeat the specific criticisms.

16-16

The DEIR analysis based on the defective water quality modeling and lack of available data must be corrected in a new amended Draft EIR, that must be recirculated to all interested parties, including State and Federal agencies.

#### Illegal Deferral of Mitigation in Future Studies and Programs

The DEIR contains little substantial evidence that proves identified (and as yet unidentified) potentially significant impacts to biological resources and water quality due to pipeline construction and effluent discharge into the Old River can be mitigated to a "less-than-significant" level with future studies and vaguely defined mitigation programs. In addition, mitigation measures that seek to mitigate potential impacts by simply stating that a permit is required from a State or Federal agency is not mitigation. Undefined future Fish Rescue Plans or future unknown permit requirements do not qualify as scientific justification for finding that potential significant impacts to resources and water quality have been "mitigated." The mitigation measures illegally defer mitigation to a future date, which violates key CEQA case law.

16-17

The assumption that potentially significant environmental issues can be mitigated effectively with future permits and mitigation plans, in the absence of any current documentation, violates the basic tenets expressed in the key CEQA cases on the issue (*Sundstrom v. County of Mendocino*, and more recent cases).

#### Range of Alternatives is Inadequate

The DEIR range of alternatives studied is inadequate because no alternative examines the impacts of land disposal of a portion of the treated effluent, during certain times of the year. All other treatments plants existing or planned in the area (Mountain House, Manteca, Lathrop) include some form of land disposal. The range of EIR alternatives consider only different locations for water discharge. The range of alternatives must consider other credible non-water discharge alternatives in order to comply with CEQA

16-18

Letter to Steve Bayley

6 December 2001

Page 6

case law on alternatives. The alternatives analysis must be amended to include land disposal or significant scientific justification must be included as to why land disposal is infeasible and has not been studied.

16-18

If there are any questions regarding these comments, you may contact me at [eric@baseline-env.com](mailto:eric@baseline-env.com), 510/420-8686 or 209/462-7079. Please send a copy of the entire Final EIR (not just responses to our comments) to me at 1421 W. Willow Street, Stockton, 95203. Please do not send the Final EIR to the Mother Lode Chapter office of the Sierra Club in Sacramento at the address indicated on the letterhead.

Sincerely,



Eric Parfrey, member, Executive Committee  
Sierra Club, Mother Lode Chapter

cc: Regional Water Quality Control Board  
U.S. Bureau of Reclamation  
Senator Mike Machado  
Assemblywoman Barbara Matthews  
DeltaKeeper  
South Delta Water Agency  
Tracy City Council  
Susan Brandt-Hawley  
Don Mooney

## 2.0 COMMENTS AND RESPONSES

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### LETTER 16

Sierra Club

December 6, 2001

Eric Parfrey, Member, Executive Committee

Sierra Club, Mother Load Chapter

#### Response to Comment 16-1

*The commentor generally states that the Draft EIR fails to adequately identify and mitigate water quality and biological (including fisheries) impacts. The commentor states that the Draft EIR analysis is inadequate and incorporates by references other comment letters submitted on the Draft EIR.*

Master Responses Section A and Master Response Section 2.B provide a detailed discussion of the proposed project's impacts to water quality and biological resources. Responses to Comment Letters 1, 2, 15, and 17 provide the City's responses to the comments incorporated by reference.

#### Response to Comment 16-2

*The commentor states that the Draft EIR must be amended and recirculated.*

As described in the Responses to Comment Letters 1, 2, 15 and 17, consideration of, and response to, these comments did not result in the identification of significant new environmental impacts. Further, a substantial increase in the severity of an impact that cannot be mitigated, which would meet CEQA's definition of "substantial new information" and trigger recirculation, has also not been identified. As described on page 4.1-6 of the Draft EIR, the temporary agricultural impacts associated with construction of the proposed outfall pipeline were not considered significant and were scoped out of the EIR at the NOP stage. As shown in Appendix A of the Draft EIR, no comments were received on the NOP that objected to this conclusion.

#### Response to Comment 16-3

*Commentor notes that the Draft EIR does not describe lands north of Delta Avenue.*

The last paragraph on page 4.1-1 in Section 4.1 (Land Use) has been modified through Errata to include the following description of these lands:

"As stated above, the existing outfall pipeline is located within the right-of-way of Arbor Avenue, MacArthur Drive, and Delta Avenue as well as through agricultural lands north of Delta Avenue and between Paradise Cut and Old River. Land north of Delta Avenue and south of Paradise Cut are designated General Agriculture on the San Joaquin County General Plan Map with AG-40 zoning (Van Buren, pers. comm., 2001). Several parcels in this area are under Williamson Act Contracts, however the existing pipeline is considered a permitted use within contract lands. Lands between Paradise Cut and Old River are designated Open Space Resource Conservation with AG-40 zoning."

*Commentor notes that the map of the new pipeline alignment does not follow the right of way of the existing pipeline.*

Both the proposed alignment and the existing pipeline are located along MacArthur Boulevard north to the intersection of Delta Avenue. From this point, both the proposed alignment and the existing pipeline veer east and follow Delta Avenue. However, the existing and proposed routes will deviate in alignments northward to their respective points of discharge at Old River. The alignment depicted in Figure 3-9 of the Draft EIR correctly acknowledges that the pipeline would be placed outside of the existing roadway right-of-way. Approximately 2,500 feet east of the intersection of Delta Avenue and MacArthur Drive the pipeline route aligns north. This segment extends through agricultural lands used for row crops. The proposed pipeline will require a construction right-of-way of approximately 30 feet wide and 4,500 feet long in lands both north and south of Paradise Cut. This alignment is further addressed in Section 4.1 (Land Use) of the Draft EIR.

**Response to Comment 16-4**

*Commentor raises concerns regarding the means by which the crossing of the Paradise cut waterway will be achieved.*

Construction of the new outfall pipeline will cross the Paradise Cut waterway using an appropriate trenchless technology (e.g. microtunneling, directional drilling, or bore and jack), to be identified during the design of the pipeline (as identified in Sections 4.1 and 4.8 of the Draft EIR). In bore and jack construction, a pit is dug on one side of the waterway to be crossed and from there a hole is bored under the waterway for the pipeline to a receiving pit on the other side of the waterway. The pipe is then jacked underground from one pit to the other. Microtunneling is an extremely accurate, laser guided method for installing pipelines in varied soil conditions by digging pits on either side of the waterway to be crossed and opening a small tunnel for the pipeline under the waterbody.

The locations of the drilling and jacking pits will be established to avoid sensitive habitats on either side of Paradise Cut. The crown of the pipe or tunnel under Paradise Cut will be kept at a minimum of three diameters below the water level to avoid "frac out" or other ground collapse or water quality issues. The trenchless construction is not anticipated to affect boat traffic.

**Response to Comment 16-5**

*Commentor raises concerns regarding the proposed project's impacts to levees.*

The new outfall pipeline will be constructed under existing levees at Paradise Cut and adjacent riparian areas using an appropriate trenchless technology (e.g., microtunneling or bore and jack) to be identified during the design of the pipeline (as identified in Sections 4.1 and 4.8 of the Draft EIR). This form of pipeline construction is widely used for avoiding land disturbance. A detailed geotechnical and structural investigation(s) will be performed prior to design of the pipeline in order to identify any geologic or structural levee issues.

## 2.0 COMMENTS AND RESPONSES

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Page 3-5 of the Draft EIR details anticipated pipeline and diffuser construction within Old River, which involves the use of sheetpiles and river bottom excavation. The biological and water resource impacts of this construction are specifically addressed under Impacts 4.6.2, 4.8.4 and 4.8.5.

### Response to Comment 16-6

*Commentor expresses concern as to whether the Draft EIR adequately discusses the types of permits that will be requested from the Regional Water Quality Control Board. Specifically, commentor seeks confirmation that the City will apply for an updated NPDES permit.*

Upon the certification of the Final EIR, the City will request a NPDES permit for the combined upgrade and expansion, and recognizes that a Report of Waste Discharge will be required in association with this request. In discussions with the Regional Board, City staff have acknowledged that certification of the proposed project EIR will likely precede permit review. CEQA Guidelines Section 15124 does not require a detailed description of the permitting process, as suggested by the commentor. [14 C.C.R. § 155124(d)(B)(1)(B) (stating that the project description must include “to the extent that the information is known to the lead agency” the permits and approvals required to implement the project)].

### Response to Comment 16-7

*The Commentor states that the Project Description does not adequately describe the proposed project's effluent and inquires whether the proposed project includes denitrification.*

Table 3-5 of the Draft EIR and Master Response Section A provide a detailed description of the proposed project's effluent. As described in the engineering feasibility study, the proposed project will incorporate a secondary biological treatment process that will use aeration to provide oxidation of organics in the water and removal of ammonia through nitrification. The resulting nitrate will be removed to levels of approximately 10 mg/l in the anoxic zones in the secondary aeration basins through the denitrification process.

### Response to Comment 16-8

*Commentor states that the Draft EIR fails to discuss land disposal alternatives.*

As described in Master Response Section 2.C, the City evaluated land disposal alternatives during the feasibility study, including the Maximum Summertime Reuse Alternative and the Maximum Reuse of Recycled Water Alternative specifically. [Draft EIR at 6-1 and 6-35-6-50.]

**Response to Comment 16-9**

*Commentor raises concerns as to whether the Draft EIR identifies the types of permits that may be required from San Joaquin County.*

Section 3.0 (Project Description) describes the anticipated major permits and approvals for the proposed outfall pipeline. The City will need a grading permit prior to starting construction in areas located outside the City limits (*i.e.*, within San Joaquin County's jurisdiction) as well as a site approval from the San Joaquin County Planning Department for construction in lands north of Delta Avenue and between Paradise Cut and Old River. The text on page 3-26 of the Draft EIR has been revised as follows, via Errata:

"San Joaquin County ~~Community Development Department~~ ~~Planning Department~~ and San Joaquin County Public Works Department. Construction activities occurring in roadways and lands located in unincorporated County lands would require permits from the San Joaquin County ~~Development Department~~ Planning Department (site approval) and San Joaquin County Public Works Department (grading)."

The General Plan consistency analysis was based on review of the City's and County's General Plans and consultation with County staff. The project's potential need for permits from the County does not make the project inconsistent with the General Plan as suggested by the commentor.

**Response to Comment 16-10**

*Commentor raises concerns regarding land use and agricultural impacts.*

As described in Response to Comment 16-2, agricultural impacts that were scoped at the NOP stage were determined to be temporary, and would not result in a significant impact. Construction would occur in the summer, precluding agricultural planting for one season in the pipeline construction right-of-way. South of Paradise Cut, the pipeline construction right-of-way would be a strip of land at least 30-feet wide and about 2,300-feet long, with another 1/4 acre of the site for tunneling under the levee/river. North of Paradise Cut, the construction right-of-way would be a 1/4 acre for the receiving pit etc. for tunneling, and a strip 30-feet wide and about 2,200-feet long. Total acreage would be approximately 3.5 acres. Following construction, agricultural production could once again resume, as is currently the case over the existing outfall pipe.

**Response to Comment 16-11**

*The commentor suggests that the biological resources analysis in the Draft EIR is inadequate and fails to address construction impacts associated with the proposed outfall pipeline and water quality impacts from effluent discharge.*

As identified in Section 4.8 (Biological Resources) of the Draft EIR, the City has considered the potential biological resource impacts from construction of the entire length of the proposed outfall pipeline. The Draft EIR identified potentially significant impacts associated with the construction of

## 2.0 COMMENTS AND RESPONSES

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the proposed outfall pipeline, including impacts to the northwestern pond turtle (Impact 4.8.1), nesting raptors (including Swainson's hawk) and migratory birds (Impact 4.8.2), western burrowing owl (Impact 4.8.3), special-status fish species (Impact 4.8.4), and jurisdictional waters of the U.S. (Impact 4.8.5). These impacts cannot be "quantified" at this point in the project, given the transient behavior of some of the animal species and lack of detailed construction plans for the diffuser placement within Old River. However, CEQA does not require that impacts be quantified.

Regarding impacts to Swainson's hawk, the commentor fails to note that Impact 4.8.2 specifically addresses potential impacts to nesting Swainson's hawk from construction activities and that Mitigation Measure MM 4.8.2 specifically requires avoidance of active nests, rather than payment of fees.

See Master Response Section A(3)(f) for a discussion of the proposed project's impacts to fisheries, and a description of the measures necessary to mitigate thermal impacts to fisheries.

### Response to Comment 16-12

*Commentor expresses concerns regarding the adequacy of the mitigation for thermal impacts to fish as well as the mitigation for construction impacts to fish.*

Master Response Section A(3)(f) addresses the proposed project's thermal impacts on fish and the mitigation measures the City will undertake. Response to Comment 16-11 and 16-15 address the mitigation for construction impacts to fish.

### Response to Comment 16-13

*Commentor states, with respect to mitigation measures 4.8.5a, b, and c, measures that seek to mitigate potential impacts by simply stating that a permit is required from a State or federal agency is not mitigation.*

14 C.C.R. §15126.4(a)(2) not only allows, but expresses a preference for, the use of permits as mitigation. Commentor does not raise any issues as to whether the proposed project, when considered along with the necessary permits from the Army Corps of Engineers and the California Department of Fish and Game, will constitute a significant impact. Consequently, no additional response is necessary.

### Response to Comment 16-14

*Commentor states that the Biological Resources analysis is inadequate on its face because the effects of all relevant components of the anticipated effluent discharge by the proposed project have not been identified in either the Water Quality or Biological Resources sections of the Draft EIR.*

Comment 16-14 does not identify any particular constituents about which the commentor is concerned. Comment 16-14 does incorporate by reference the constituent-specific concerns raised

subsequently by the commentor in comment 16-15. Response to Comment 16-15 addresses those concerns in full. Consequently, no additional response is necessary.

*Commentor states that the potential impacts to endangered fish cannot be "lessened" to a "less-than-significant" level by preparing vaguely defined plans or future mitigation programs based on future permitting from wildlife or trustee agencies.*

As described in Master Response A(3)(f), the City has identified a performance standard and specific measures to meet that standard. Both the CEQA Guidelines and case law provide for the use of performance standards as mitigation. [14 C.C.R. §15126.4(a)(1)(b) (specifically authorizing the use of performance standards as mitigation); *Sacramento Old City Association v. City Council of Sacramento* (3d Dist. 1991) 229 Cal. App. 3d 1011].

#### **Response to Comment 16-15**

*Commentor expresses additional concerns regarding the following issues:*

- *Tidal Action* — See Master Response Section A(1)(e), Master Response A(1)(f), Master Response 2.C(2) and Response to Comment 1-1.
- *Temperature of effluent from Tracy Plant* – See Master Response Section A(3)(f).
- *Compliance Mechanism for Biological Impacts* – See Response to Comment 16-11.
- *Trace Organics Data/TDS Impacts* – See Master Response Section A(2)(a), Master Response Section A(3)(e), and Responses to Comments 1-4, 1-5 and 1-7
- *Electrical Conductivity Impacts* – See Master Response Section A(2)(a) and Response to Comment 1-8.
- *Nitrate Levels* – See Master Response Section A(3)(b) and Response to Comment 1-11.
- *Total Maximum Daily Loads* – See Master Response Section B.

#### **Response to Comment 16-16**

*Commentor states concerns regarding the Draft EIR's analysis of existing water quality conditions and potential water quality impacts of discharge.*

Existing conditions and predicted impacts are characterized in the Draft EIR, in accordance with existing state and federal laws. Master Response Section A explains the analysis of existing water quality conditions and potential water quality impacts that support the conclusion that the proposed project's individual impacts on water quality are less than significant. Master Response Section B explains the analysis regarding the proposed project's contribution to cumulative impacts. The commentor is also referred to Response to Comment 16-2 regarding the recirculation of the Draft EIR.

#### **Response to Comment 16-17**

*Commentor asserts that the Draft EIR defers mitigation and suggests that the analysis provided in the Draft EIR is based on little substantial evidence.*

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The Draft EIR, as well as the Master Responses, is based on detailed modeling, field surveys and sampling, as well as review of the applicable professional literature. This detailed research and analysis constitutes "substantial evidence" as provided in Section 15384 of the CEQA Guidelines. [14 C.C.R. § 15384 (stating that substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts)]. The Draft EIR contains performance standards that must be met in order for the project to move forward. Both the CEQA Guidelines and case law provide for the use of performance standards as mitigation. [14 C.C.R. § 15126.4(a)(1)(B) (specifically authorizing the use of performance standards for mitigation); *Sacramento Old City Association v. City Council of Sacramento* (3d Dist. 1991) 229 Cal. App. 3d 1011].

### Response to Comment 16-18

*The commentor states that the Draft EIR is inadequate because it does not examine the impacts of land disposal of a portion of the treated effluent during certain times of the year.*

See Response to Comment 16-8 and Master Response Section C regarding the adequacy of the alternatives analysis under CEQA, and specifically, for a discussion of the land disposal alternatives considered in the Draft EIR.

**SOUTH DELTA WATER AGENCY**

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December 6, 2001

Via Fax: 831-4472

City of Tracy

Public Works Department

Attn: Steve Bayley, Deputy Director of Public Works

520 Tracy Blvd.

Tracy, CA 95376

Re: Tracy Wastewater Treatment Plant Expansion DEIR

Dear Mr. Bayley:

The South Delta Water Agency ("SDWA") is statutorily charged with the protection of the quality and quantity of water within the south Delta. The Agency therefore comments on any project which has the potential of adversely affecting either of these criteria. A review of the above referenced DEIR reveals two major concerns. The first is that the analysis of water quality has selected measuring sites which are outside the area bordered by the four temporary barriers locations. The result is that the DEIR measures the project's effects on areas which are to a great extent influenced by other hydrologic conditions but does not examine the effects on water quality nearest the project's point of discharge.

17-1

The second concern is that there appear to be incorrect assumptions used by the modelers and authors, especially with regard to the effects of the South Delta barriers. If this is indeed the case, the results of the analyses would be of questionable use.

17-2

Interior South Delta Effects.

Table 4.6-1 of the DEIR describes six water quality monitoring sites. These sites are referenced throughout the chapter on Surface Hydrology and Water Quality as well as the Appendices. Two of the sites (Vernalis and Mossdale) are upstream of the Head of Old River ("HOR") barrier site. The other four (Middle River at Borden Highway, Delta Pumping Plant headworks, Delta Mendota Canal intake, and Old River near Byron) are all downstream of the Mr.

17-3

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three tidal barrier sites. By using these locations for analysis, the authors fail to evaluate the project's effects in the South Delta channels closest to the project's discharge point, the area of the Delta which suffers the worst water quality problems.

With the three tidal barriers in place, the water quality at the latter four measuring points is mostly controlled by the action of the export pumps which draw higher quality Sacramento River water to those pumps. In fact, with the permanent tidal barriers in operation, there would be no flow from Old River, Grant Line Canal, or Middle River reaching the four measuring points (excepting after making the long circuit through the Stockton Deep Water Ship Channel and back through the Central Delta -- a journey which results in near complete dilution).

The DEIR fails to acknowledge that there are three Water Quality Objective sites located within the South Delta in addition to the Vernalis site referenced in the document. D-1641 requires the USBR and DWR to meet a L.O.E.C. Water Quality Objective, year round, at the San Joaquin River near Brandt Bridge, Old River near Middle River, and Old River near Tracy Road Bridge (sic). [After five years, the Objective mirrors the Vernalis Objective of 7/1.0 E.C.]. The ability of the State and Federal projects to meet these Objectives, as well as historic data of quality problems at these locations is contained in both D-1641 and the FEIR supporting that SWRCB Order. Depending on the time of year, the type of year, and the existence of barriers, the project can have significant environmental effects in the areas around and between these new Objective locations. The DEIR does not look at those areas. Without the barriers, stagnant or null zones exist in the South Delta due to the changed circulation patterns caused by the export projects. [See 1980 Report on the Effects of the CVP on the Southern Delta Water Supply Sacramento-San Joaquin River Delta, California co-authored by the SDWA and USBR.]

17-3

Different combinations of the four barriers can either help or exacerbate the problems. For example, having only the HOR barrier results in a near de-watering of South Delta channels. This would significantly reduce the assimilative capacity of the waters surrounding the Tracy discharge. Having less than all the tidal barriers would also allow water levels to drop significantly and exacerbate the existence of the null zones. In those zones, salts concentrate and dissolved oxygen is reduced.

Having three permanent tidal barriers would significantly help E.C./TDS levels in the South Delta as well as dissolved oxygen levels in the Ship Channel, but not always result in compliance with Water Quality Objectives.

Finally, by having three permanent tidal barriers and an operable HOR barrier there can be an improvement of many problems but increases in other problems. Operation of permanent tidal barriers may require periodic flushing (by opening one of the tidal barriers) of the accumulated Tracy effluent in Old River. Operational studies of these issues and modeling have been done by

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DWR:

The current draft of the EIR does not look at these areas or how the project will affect E.C./TDS, compliance at the Water Quality Objective sites. We also note that Appendix G has gaps in the text where information is missing and does not appear to contain the Figures referenced therein.

17-4

Errors or Omissions in the DEIR

Section 4.6.1 fails to mention that a temporary rock tidal barrier has been installed in Grant Line Canal nearly every year since 1995.

17-5

The DEIR fails to include the most recent information regarding the DO problem in the Stockton Deep Water Ship Channel. The Regional Board has allowed a stakeholder process to begin work on a TMDL for DO. This process has developed large amounts of data on the causes and nature of the problem. The authors need to contact Dr. G. Fred Lee to see how their current analysis differs from the Regional Board process.

17-6

As noted above, the DEIR makes no mention of the three interior South Delta Water Quality Objectives which are permit conditions of the CVP and SWP. In the recent Bay-Delta hearings, DWR presented uncontradicted evidence that operation of the tidal barriers alone would not result in compliance with the Objectives under all conditions. The USBR presented evidence that its releases from New Melones to maintain the Vernalis Objective would be insufficient, that its operations plan for that reservoir would not allow additional releases for the three interior Objectives, and that it has no program to address the problem. CALFED also has no program which will address the salinity problems underlying the Objectives. The result therefore, is that the Tracy effluent, even when treated to a greater degree than is currently done will add salinities of 1000 - 1200 TDS to water that is supposed to be maintained at or below 1.0 E.C. There is no doubt that such additions will cause violations of the Objectives which is by definition a significant effect.

17-7

The DEIR makes no mention of the existing records of DO problems along Old River, near the City's discharge point. DWR as well as the City have information indicating DO levels there drop to 2.0mg/l. In recent years, the temporary barriers have had their culverts tied open for short periods in order to help flush the depleted water out of the system. Such a condition must be set forth, examined and mitigated through the EIR especially when the project intends to increase the nutrient/nitrogen loading to the River.

17-8

The modeling and analyses reference "median" numbers and the EIR does not provide the actual data. A median is the half-way point in a set of numbers and tells you nothing regarding

17-9

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Page four

the extremes. It is those extremes which result in violations of water quality Objectives and which must therefore be determined, discussed and examined. References to the median concentration of TDS at Vernalis in critical years seriously masks the very real problem of violations of the Vernalis Objective. CEQA does not allow an EIR to review only median numbers.

17-9

The DEIR references the sources of loading for salts to the San Joaquin River. That misstates the problem. A good portion of the load comes from east side tributaries but always at times when the concentration is well below the Objective. Concentration not load is the problem and the criteria of the Objective. Tracy's load may be insignificant compared to the total loading to the River, but the addition of 1200 TDS near a requirement of 7/1.0 E.C. is a serious problem almost regardless of the load.

17-10

The EIR states that low DO problems occur in isolated areas of the Delta (pg. 4.6-11). To the contrary, the Ship channel problem has been shown to stretch for 14 miles. The interior South Delta problems are generally unknown, but the problems of DO in Old River are well documented. This years data indicates DO problems in Middle River as well.

17-11

DO data is also shown as median numbers. As per above, a median value tells you nothing about whether or not the Objective has been violated.

17-12

The DEIR states that catastrophic nutrient loading results in conditions that cause DO. Current information indicates that absent the deep channel near Stockton, the DO problem there would be almost non-existent. However, if the TMDL process does not adequately address the problem some other way, the Regional Board will be required to begin decreasing loading to the River and will naturally have to start with existing permittees. The DEIR should include a discussion of how Tracy might decrease nutrient/nitrogen loading to the River. Some of Tracy's effluent will reach the Ship Channel under temporary and permanent tidal barrier operations.

17-13

The DEIR avoids any real discussion regarding State and Federal anti-degradation policies. Increased discharges of 1000 - 1200 TDS will adversely affect agricultural diverters in the area. In addition, the Regional Board is prohibited from approving increases in loading when the waterway has been designed impaired. The Delta is designated such for salinity and DO. The EIR cannot assume the problem will be fixed by the time it applies for its permit, rather it must assume it will be required to decrease current loading as part of the programs to address the impaired waters.

17-14

The modeling and discussion thereof suggests that the operation of the tidal barriers was not fully understood. When all three temporary barriers are operating, some of the Tracy effluent will reach the Federal pumps, and possibly the State and Contra Costa pumps. With the

17-15

permanent barriers, none of the Tracy effluent will reach those pumps because the net flow is back towards the San Joaquin. The eventual barrier configuration is unknown at this time, but three temporary barriers will be installed each year for the foreseeable future. The modeling not only fails to examine the different consequences resulting from different barrier configurations, but it fails to examine the project's effects within the area bounded by the barriers. Increased discharges from the City will adversely affect water quality. Salts, temperature, DO and other constituents will be elevated in the surrounding areas. The document has no such analysis.

17-15

At other times there will be no barriers installed or in operation. At those times, the flow of the City's discharges will generally always end up in the Delta Mendota Canal. Depending on the flow conditions, it will only sometimes be diluted before it reaches the CVP intake. The EIR therefore needs two different analyses regarding flow conditions.

17-16

The DEIR states that temperature increases will be mitigated because the City will have to go through consultation with FWS/DFG. Recent case law makes it clear that the environmental review must include those conditions FWS may impose, not have a biological opinion issued afterwards which sets forth new conditions the public was unable to comment on.

17-17

The DEIR references that the DO problem is exacerbated by the "south Delta facilities." It should be made clear that the facilities which harm circulation are the export pumps. The tidal barriers improve unidirectional flow and improve water quality.

17-18

On page 4.6-45 the DEIR concludes that the City will decrease the salinity of its discharges through source control and mixing of the discharge water. Each of these is speculation; there is no discussion of how, how much and when it will occur. CEQA does not allow an impact to be left un-examined because the project proponent intends to do something about it later.

17-19

The DEIR fails to list other projects that will, in combination with the proposed project result in cumulative effects which are significant. Numerous transfers of water are ongoing and proposed. These transfers often result in a reallocation of flows during times when the Objectives are at risk. For example, when CALFED purchases Merced Irrigation District water for its Environmental Water Account, it sometimes results in that District switching flows from summer power releases to increased flows at other times of the year. That action threatens the Vernalis and interior Delta Objectives. If that occurs during times when Tracy will be increasing salt loading at high concentrations, harm to agricultural diverters will occur. The DEIR must look at the numerous DWR, USBR, CALFED and local projects which affect flows in order for its cumulative analysis to be complete.

17-20

Appendix E describes the alternative barrier operations under CALFED. However, it

17-21

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misstates the alternatives. CALFED's no-action alternative does include a continuation of the three temporary barriers but has no specific limitation on the operation of the Grant Line Canal barrier culverts. Contrary to the DEIR, those culverts must be assumed to be in operation at most times the barrier is installed, as has been the practice. The Appendix also assumes the HOR barrier is operated to provide dilution flows for the Tracy discharge. Such an scenario has never occurred in the past and is not part of any existing permit.

The assumptions regarding a new Clifton Court Forebay would result in severe damage to any diverter not protected by a tidal barrier. Taking water in on the low tide will double the draw down currently experienced. That scenario creates a plethora of problems and should not be assumed to be viable as it will cause more harm.

17-21

The Appendix also assumes GEC permanent barrier culvert operations which are not proposed by either CALFED, DWR, or SDWA. Permanent barriers which do not operate do not protect South Delta diverters.

Appendix F lists the maximum TDS experienced at Vernalis during 1990-1992 at 803 TDS. During that last drought, TDS exceed 1000. The data needs to be checked with DWR records.

17-22

Appendix G at page 15 states that without barriers there is ample circulation to limit the buildup of effluent within the southern Delta. This is incorrect; the opposite is true. The operation of the export pumps creates stagnant zones. Tidal action moves the effluent to these zones where the constituents concentrate without any flushing. Any modeling which is based on this incorrect statement will be false. The Appendix also assumes dredging of four feet in Middle River. Although such dredging would be welcomed, dredging in general is only referenced in the CALFED ROD. There is no program which is seeking to dredge Middle River and no proposal that it be four feet of dredging. These assumptions indicate that rather than analysis current and likely conditions, the authors chose to make assumptions which would result in the best possible conditions for the project.

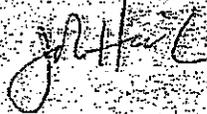
17-23

Based on the above, the SDWA believes the DEIR is inadequate under CEQA and must be amended before it can be adopted. The modelers should contact Alex Hildebrand of SDWA, Mark Holderman of DWR, Dr. Fred Lee of Lee and Associates, and Dennis Majors of CALFED to check the assumptions and data they have used. Much of the data supporting these comments is available on the web or through requests to DWR and SWRCB. We will supply you with a copy of a portion of the record supporting D-1641 on CD which will include most of the documents or data referenced herein which underlies our comments. That CD will follow by separate correspondence.

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Thank you for the opportunity to comment. Please feel free to contact us if you have any question.

Very truly yours,



JOHN HERRICK

## 2.0 COMMENTS AND RESPONSES

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### LETTER 17

South Delta Water Agency

December 6, 2001

John Herrick

#### Response to Comment 17-1

*Commentor stated that Draft EIR does not assess impacts near the point of discharge.*

The statement by the commentor is inaccurate. The CORMIX plume model was used to analyze the near field area adjacent to the diffusers (Master Response Section A(1)(f)(ii)). The City considered the effects of different water barriers throughout the analysis of the proposed project's water quality impacts (Master Response Section A(1)(e) and Master Response Section 2.C(2)).

#### Response to Comment 17-2

*Commentor states that incorrect assumptions were made by modelers and authors, e.g., effects of the South Delta barriers.*

Commentor does not identify particular assumptions of concern. Master Response Section A(1) provides the basis for the City's methodology.

#### Response to Comment 17-3

*Commentor repeats the concern that the Draft EIR does not analyze the impact of the barriers.*

As described in Master Response Section A(1)(e) and Master Response 2.C(2) the City considered the impact of the barriers throughout its analysis of water quality impacts of the proposed project.

*Commentor states that the Draft EIR fails to mention the three Decision D-1641 water quality objective compliance-monitoring sites in the South Delta (Old River near Middle River, Old River near Tracy Road, San Joaquin River near Brandt Bridge) or the Decision 1641 standards limiting TDS and EC at those locations.*

The City recognizes commentor's concerns regarding TDS and EC levels at the three monitoring sites. Data from those sites is included in **Table 2-5** and in **Figures 2-3** through **2-7**. As discussed in Master Response Section A(2)(a) the City is incorporating mitigation that will ensure that the City will not exceed its currently permitted level of TDS (*i.e.*, 75,000 lbs/day). As a result of this mitigation measure, the City's effluent will improve TDS and EC conditions in the receiving waters.

*Commentor makes reference to the 1980 Report on the Effects of the CVP on the Southern Delta Water Supply Sacramento-San Joaquin River Delta, California co-authored by the SDWA and USBR.*

Master Response Section A(1)(f)(i) summarizes the reasons why the 1980 modeling effort is inadequate and less accurate than the modeling used to support the conclusions in the Draft EIR.

**Response to Comment 17-4**

*Commentor stated that there are gaps in text and tables in Appendix G of the Draft EIR.*

The missing tables and figures for Appendix G are included as errata [see Section 3.0]. The missing table reference in the second paragraph on Page 13 of Appendix G is "Ammonia, Disassociated as N (mg/l) – Wet Water Year Type" in Appendix F.

**Response to Comment 17-5**

*Commentor expresses concern as to whether the Draft EIR adequately analyzed the impact of the temporary rock barrier in Grant Line Canal.*

The Draft EIR analyzes several scenarios that reflect a range of barrier alternatives. The City identified these scenarios in cooperation with the Department of Water Resources (Master Response Section A(1)(e) and Master Response Section 2.C(2)).

**Response to Comment 17-6**

*Commentor states that the Draft EIR fails to include the most recent information regarding the dissolved oxygen problem in the Stockton Deep Water Ship Channel.*

Master Response Section A(3)(d) discusses the proposed project's impacts within the Stockton Deep Water Ship Channel.

**Response to Comment 17-7**

*Commentor states that DWR has provided testimony that operation of the South Delta tidal barriers will not result in compliance with conductivity objectives under all conditions. The commentor further states that the City's discharge at 1,000 to 1,200 mg/l TDS will cause violations of the objectives.*

As described in Master Response Section A(2)(a) the City determined that the proposed project's impacts upon EC and TDS concentrations are less than significant. Nonetheless, to address long term regional environmental goals that go beyond the standards of CEQA, the City has committed to decrease the TDS concentrations in the source water for the proposed project, such that the proposed project will maintain the current permitted amounts (lbs/day) of TDS in the effluent. The decrease in effluent concentration will beneficially affect the receiving waters under various barrier scenarios.

**Response to Comment 17-8**

*Commentor notes that the Draft EIR does not mention existing DO problems along Old River. Commentor states that DWR data and City monitoring data indicate that dissolved oxygen levels*

## 2.0 COMMENTS AND RESPONSES

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*may be as low as 2.0 mg/l. Commentor asserts that the proposed project will increase nutrient/nitrogen loading to the river.*

Master Response Table 2-13 and Section A(3)(d) address the proposed project's impacts upon dissolved oxygen.

### **Response to Comment 17-9**

*Commentor notes that actual data sets were not included. Commentor states that medians do not say anything about extremes, which result in Water Quality Objective (WQO) violations, but instead mask compliance problems.*

Master Response Section A(1)(d) addresses the City's use of median values.

### **Response to Comment 17-10**

*Commentor states that while the City's TDS load may be insignificant as compared to the total loading to Old River, the addition of 1,200 TDS is a serious problem regardless of the load.*

See Response to Comment 17-7.

### **Response to Comment 17-11**

*Commentor states that the dissolved oxygen problem in the Stockton Deep Water Ship Channel stretches for 14 miles and is not isolated. Commentor notes that interior South Delta problems are generally unknown, but dissolved oxygen problems in Old River and Middle River are well documented.*

Master Response Section A(3)(d) addresses the proposed project's impacts upon dissolved oxygen.

### **Response to Comment 17-12**

*Commentor states that dissolved oxygen data are shown as medians, rather than minimum values, which are more indicative of impacts.*

Master Response Section A(1)(d) addresses the City's use of median values.

### **Response to Comment 17-13**

*Commentor states that the Stockton Deep Water Ship Channel causes the dissolved oxygen problem in the area of discharge. Commentor asserts that the Regional Board will have to start decreasing loadings to the ship channel as a result of the TMDL, starting with NPDES permittees. Commentor asks how Tracy proposes to decrease nutrient/nitrogen loading. Commentor asserts that some of the City's effluent gets to the ship channel.*

Master Response Section A(3)(d) addresses the proposed project's impacts upon dissolved oxygen and, specifically, the ship channel. Master Response Section A(3)(b) addresses the proposed project's impacts upon nitrogen levels.

**Response to Comment 17-14**

*Commentor states that the Draft EIR avoids any real discussion of State and federal antidegradation policies. Commentor asserts that the increased discharge of effluent with a TDS concentration of 1,000 to 1,200 mg/l adversely impacts agricultural diverters in the area. Commentor asserts that the Regional Board is prohibited from approving increases in loadings of impairing pollutants. Commentor states that the City must reduce current loadings to address impairment.*

See Master Response Section A(2)(c) addresses the applicability of the state and federal antidegradation policies. See Response to Comment 17-7 for a discussion regarding the projected TDS discharges. See Master Section B and Response to Comment 15-9 for a discussion of discharges into impaired waterbodies.

**Response to Comment 17-15**

*Commentor states that the future operation of tidal barriers is not fully understood. Commentor states that with permanent barriers in place, the City's effluent will reach the water project pumps. Commentor asserts that the modeling fails to examine different consequences from different barrier configurations and fails to evaluate effects within barriers.*

This Draft EIR was not, and is not, intended to analyze the effects of the barrier project per se. Rather, it is intended to analyze the impacts of the City's discharge under various foreseeable future barrier operation scenarios. See Master Response Sections A (1)(e) and Master Response 2.C(2) for discussions of the City's analysis of the effect of the barriers.

**Response to Comment 17-16**

*Commentor states that the City's effluent will only sometimes be diluted before reaching the CVP intake.*

This statement is erroneous. Use of high rate diffusers will rapidly mix tertiary effluent from the City in the Old River. This is supported by the far field dilution modeling, which accounts for tidal action, river flow, and barrier operations. See Master Response Section A(1)(f) for a discussion of the City's modeling of flows. In addition, see *Master Response Table 2-4* and Response to Comment 1-1, demonstrating that the proposed project's impacts with respect to causing acute or chronic toxicity are less than significant, even without consideration of any dilution.

**Response to Comment 17-17**

*Commentor states that consultation with FWS/DFG will not alone be adequate for the Final EIR to deal with temperature concerns.*

## 2.0 COMMENTS AND RESPONSES

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Mitigation Measures MM 4.8.4b and MM 4.6.1 both identify measures that may be employed to reduce temperature and fishery impacts. The Draft EIR contains performance standards that must be met in order for the project to move forward. Both the CEQA Guidelines and case law provide for the use of performance standards as mitigation. [See 14 C.C.R. § 15126.4(a)(1)(B) (specifically authorizing the use of performance standards for mitigation); *Sacramento Old City Association v. City Council of Sacramento* (3d Dist. 1991) 229 Cal. App. 3d 1011].

### Response to Comment 17-18

*Commentor states that the "facilities which harm circulation are the export pumps." Commentor asserts that South Delta barriers improve unidirectional flow and improve water quality.*

The purpose of this EIR is to analyze the potential impacts of the City's discharge on the environment, not to analyze the impacts of the export pumps or any of the barriers on the environment per se. Potential impacts of City's discharge under various barrier operational scenarios was appropriately analyzed because such scenarios defined the range of possible discharge conditions and resulting impacts. As shown in the Draft EIR, and confirmed upon further analysis, the South Delta barriers appear to restrict circulation in this area and amplify the impact of the City discharge and any other discharges within the boundaries of the barriers. The barriers appear to reduce minimum flow rates and increase the percentage of effluent present at specific locations in Old River. The results of the CEQA evaluation are that the proposed wastewater treatment plant upgrade and expansion will not result in any individual significant impacts on the receiving water environment under all barrier operational scenarios foreseeable (based on discussions with DWR staff) and analyzed within this EIR.

### Response to Comment 17-19

*Commentor states that the Draft EIR provides no discussion of how salinity will be reduced.*

Master Response Section A(2)(a) provides a detailed explanation as to how the City plans to reduce the concentration of TDS in the City's proposed discharge.

### Response to Comment 17-20

*Commentor states that the Draft EIR fails to list projects that result in cumulative significant impact, e.g. water transfer projects.*

Section 4.6 of the Draft EIR does describe several projects that consist of the cumulative setting and cumulative water quality impacts. The finding that the cumulative impact of the proposed project and other future projects is significant and unavoidable is based solely on the fact that while the City's discharge is expected to comply with the most stringent of concentration based standards, a slight increase in mass is expected for several constituents [see Master Response Section B].

### Response to Comment 17-21

*Commentor states that CALFED's no-action alternative does not limit the operation of the Grant Line Canal barrier culverts. Commentor asserts that the assumption is that those culverts will be used as in the past. Commentor states that the head of Old River barrier is not operated to provide dilution flows to City discharge. Commentor states that the water quality impact analysis should not assume new Clifton Court Forebay. Finally, commentor states that we should not assume Grant Line Canal culvert operations for the permanent barrier scenario.*

As explained in Master Response Section A(1)(e), in cooperation with DWR staff, the City selected the barrier scenarios used in the Draft EIR specifically to reflect a reasonable range of potential flow patterns.

**Response to Comment 17-22**

*Commentor states that the maximum observed TDS at Vernalis exceeds 1000 mg/l.*

As described in Master Response Section A(2)(a) the proposed project will actually improve TDS concentrations in the receiving waters. However, since the City's discharge point is located downstream of Vernalis, the City's discharge is not expected to beneficially affect the San Joaquin River at Vernalis.

**Response to Comment 17-23**

*Commentor disagrees with the statement in the Draft EIR that without barriers, there is ample circulation to limit the buildup of effluent in South Delta. Commentor asserts that water project export pumps create stagnant zones in the South Delta. Commentor states that tidal action moves effluent to zones where constituents concentrate without flushing. Commentor states that the assumed dredging of Middle River is speculative. Commentor states that such dredging is only referenced in the CALFED Record Of Decision and that no program or proposal exists which will do this.*

Comments made reflect, in part, the information and findings of the 1980 report titled "Effects of the CVP upon the Southern Delta Water Supply, Sacramento-San Joaquin River Delta, California," (the "1980 Modeling") which was prepared jointly by the Water and Power Resources Service and the SDWA. The 1980 Modeling indicates that, in summer months, conditions occur in Old River in which agricultural withdrawals exceed flow in the river, effectively trapping water volumes in the South Delta. Master Response Section A(1)(f)(i) addresses the inadequacies of using the 1980 Modeling for purposes of identifying the impacts of the proposed project.

The assumptions made regarding dredging in Middle River were obtained through discussions with DWR staff. It did not appear prudent in the analysis to ignore the DWR staff input in this regard. The commentor is referred to Response to Comment 16-2 regarding the consideration of comments and recirculation of the Draft EIR.

LETTER 18

**SOUTH DELTA WATER AGENCY**

4255 PACIFIC AVENUE, SUITE 2  
POST OFFICE BOX 70392  
STOCKTON, CALIFORNIA 95267  
TELEPHONE (209) 956-0150  
FAX (209) 956-0154  
EMAIL Jherrlaw@aol.com

Directors:

Jerry Robinson, Chairman  
Robert K. Ferguson, Vice-Chairman  
Alex Hildebrand, Secretary  
Natalino Bacchetti  
Mark Bacchetti

Counsel:

RECEIVED

Edm. Herrick  
Engineer  
Gerald T. Orlob

DEC 17 2001

PUBLIC WORKS

December 11, 2001

City of Tracy  
Public Works Department  
Attn: Steve Bayley, Deputy Director of Public Works  
520 Tracy Blvd.  
Tracy, CA 95376

Re: Draft EIR - Tracy Wastewater Treatment Plant Expansion

Dear Mr. Bayley:

Pursuant to my Comment letter of December 6, enclosed please find three CD's which contain most of the exhibits presented by parties in the recent Bay-Delta Water Rights hearings. I am forwarding these because they contain the various technical analyses of conditions in the southern Delta regarding TDS/EC and DO. We could not copy the index to the information, but you should be able to read the pdf format documents.

18-1

SDWA's exhibits are contained on Disk No. 5 and begin with pdf file #1240 and go through #1301. The 1980 Report on the Effects of the CVP on the Delta are contained in pdf file #1283. The San Joaquin River Group Authority's exhibits begin with pdf file #1022. Those files contain some of the modeling done on water quality in the southern Delta. The California Department of Water Resources' exhibits begin with pdf #0816. Of note are pdf files #0828 and 0831 regarding dissolved oxygen in the south Delta.

Please call me if you have any questions or comments.

Very truly yours,



JOHN HERRICK

JH/dd  
Enclosures

**LETTER 18**

South Delta Water Agency

December 11, 2001

John Herrick

**Response to Comment 18-1**

*Bay Delta Water Rights Hearings Information.*

Receipt of commentor's information is noted. Since no comments regarding the adequacy of the Draft EIR were made, no further response is required.

LETTER 19

Pacific Gas and Electric Company

2730 Gateway Oaks Drive  
Sacramento, CA 95833

December 10, 2001



Mr. Steve Bayley  
City of Tracy  
520 Tracy Blvd.  
Tracy, CA 95376

Dear Mr. Bayley:

Please accept this letter and the attachments as a written comment to the Draft Environmental Impact Report for the Tracy Wastewater Treatment Plant Expansion (SCH No. 2000012039). The Pacific Gas and Electric Company (Company) thanks the City of Tracy for the opportunity to provide input during the development of this Draft EIR as well as to voice our concerns about the Draft now during the public comment period.

The Tracy Wastewater Treatment Plant (Plant) currently receives its electrical power from the Company's Tracy Substation. Tracy Substation is operating at its full capacity and is unable to deliver the additional electrical power that the Plant Expansion will require. Thus, even though there may be a sufficient electrical supply to serve the Plant, the Company's facilities will not be capable of delivering that supply. In order to accommodate the Plant Expansion, a new electrical substation will need to be constructed in west Tracy. This will allow electrical load that is closer to the western side of Tracy, currently being served by Tracy Substation, to be shifted to the new substation, in turn allowing Tracy Substation to serve the additional Plant Expansion electrical power needs. The need for a new substation is even greater since the City is proposing two large projects either of which would require the new substation.

I previously submitted an environmental assessment package to your consultant for inclusion in the EIR process. In it, the Company identified an area in west Tracy in which to locate a substation, an area with similar environmental concerns. The information described the new substation, take-down structures and potential transmission line in some detail, and provided sufficient information for you to assess their potential environmental impacts. In order to further assist you in that assessment, I have enclosed drawings showing what the poles and substation will look like. If you need anything further in order to review the facilities and their potential impact on the environment, please let me know. As you know, the electrical facilities required to serve the Plant Expansion project are a critical component of the project, and any impacts must be fully considered in the Plant Expansion project's EIR. As our materials indicate, we believe that any impacts from the required substation and related facilities will be less than significant through avoidance of sensitive areas and the use of the standard mitigation measures described.

Mr. Steve Bayley  
December 10, 2001  
Page 2

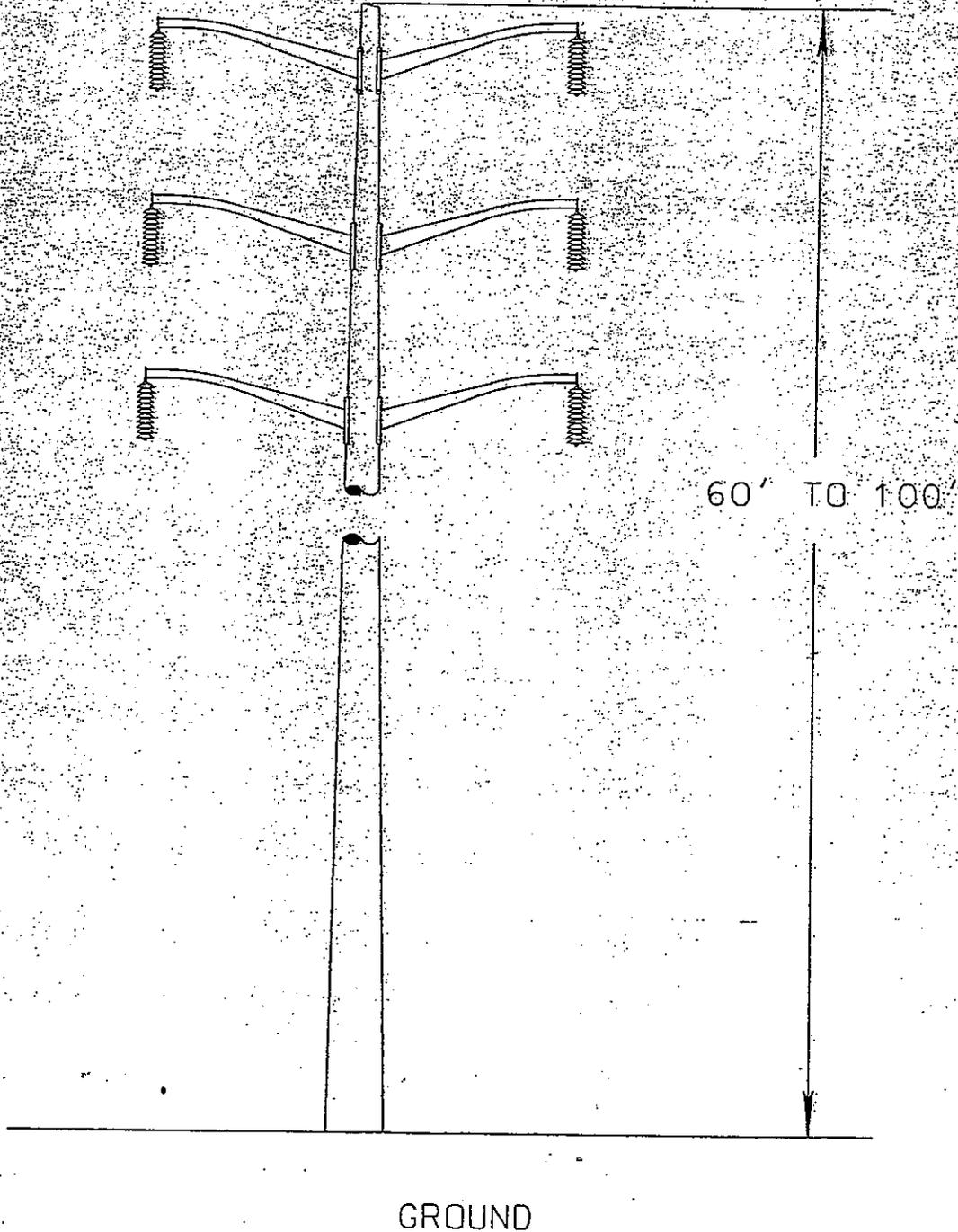
Thank you for the opportunity to raise the Company's concerns about the adequacy of the Draft EIR. If you have any questions, please contact me at (916) 923-7030 and I will be happy to provide any additional information that I have available.

Sincerely,

Christoffer Ellis, AICP  
Land Project Specialist

Enclosures.

POLE HEIGHT & CLASS SHOWN ARE TYPICAL AND ARE SUBJECT TO CHANGE DUE TO FIELD CONDITIONS SUCH AS, ALTERNATE TYPES OF TRANSMISSION & DISTRIBUTION FRAMING REQUIREMENTS, DISTRIBUTION UNDERGROUND RISERS, TRANSFORMERS, PHONE & CABLE TV ATTACHMENTS ETC...



AUTHORIZATION  
7034628

BY  
DR ROY WONG  
CH  
O.K.-  
DATE 8/9/01

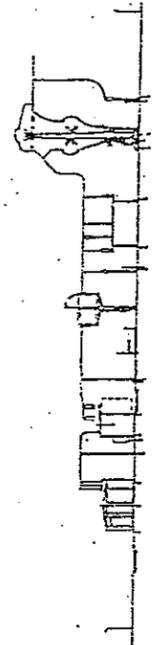
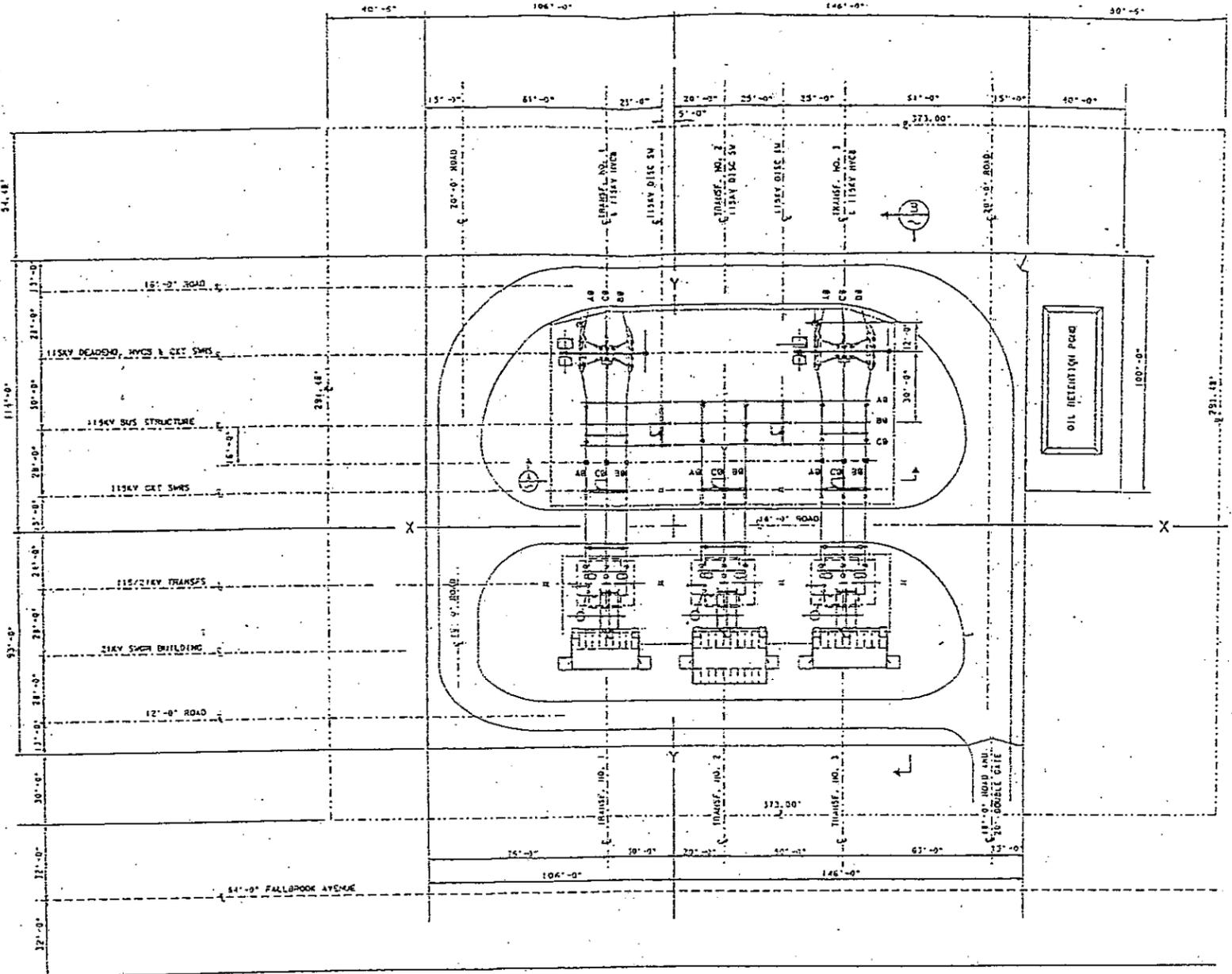
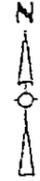
WEST TRACY SUBSTATION TAP  
PRELIMINARY INFORMATION

PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO CAL.

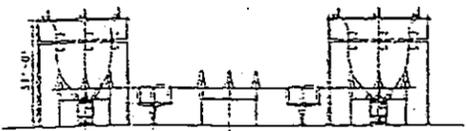


JCN	_____
REGION	_____
COUNTY	_____
PROFILE	_____
SHEET NO.	OF
DRAWING NUMBER	CHANGE





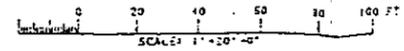
ELEVATION B



ELEVATION A

REFERENCES  
1. SINGLE LINE DIAGRAM

DWG. NO.  
CF10002



NO.	DATE	REVISIONS	BY	CHECKED	APPROVED
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

GENERAL ARRANGEMENT OF  
TYPICAL HISKY SUBSTATION

SUBSTATION ENGINEERING  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

CFN002

**LETTER 24**

United States Department of the Interior – Fish and Wildlife Service  
July 23, 2002  
Jan C. Knight  
Chief, Endangered Species Division

**Response to Comment 24-1**

*Introductory remarks.*

Commentor provides introductory remarks to the letter. Since no comments were made regarding the adequacy of the Draft EIR, no further response is required.

**Response to Comment 24-2**

*Action Area.*

Commentor defines the action area as the area analyzed by USFWS when determining potential effects to listed species. The comment does not address the adequacy of the Draft EIR. Therefore, no further response is required.

**Response to Comment 24-3**

*Scope of Project.*

Commentor summarizes the scope of the proposed project. The comment does not address the adequacy of the Draft EIR. Therefore, no further response is required.

**Response to Comment 24-4**

*Potential effects on threatened species.*

Commentor states that the project may potentially impact the giant garter snake, Sacramento splittail, delta smelt, valley elderberry longhorn beetle, riparian bush rabbit. Refer to Response to Comment 23-3.

**Response to Comment 24-5**

*Informal consultation.* The Commentor, USFWS, recommends that the EPA initiate informal consultation with USFWS. The comment does not address the adequacy of the Draft EIR. Therefore, no further response is required.

**LETTER 19**

**Response to Comment 19-1**

*Commentor notes that existing PG&E facilities are operating at full capacity and that, consequently, a new substation is needed to serve demand in the Tracy area, including the proposed project.*

While the proposed project will increase the demand for electricity once the proposed project is fully developed in 2004, the immediate need identified by the commentor for a new electrical substation arises from activities unrelated to the proposed project. In fact, PG&E has indicated that, without the new substation, PG&E cannot serve the anticipated incremental increase in actual electricity needed by the City as of Summer 2003.

Because the need for the new substation has arisen prior to, and independent of, the proposed project, the City believes it would be inappropriate to include the construction of the substation as part of the proposed project. However the Draft EIR does acknowledge the proposed substation and the anticipated environmental effects identified by PG&E.

The specific siting of the substation site has not been identified. The vicinity being evaluated centers on the crossings of PG&E's electric transmission lines at Lammers Road, just south of the intersection of Lammers and Shulte Roads, near the railroad crossing. Several sites within this vicinity are being evaluated. The City understands that preliminary analysis of the environmental impacts associated with the substation necessary to deliver the supply for the projected residential growth in 2003 is currently underway.



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**NATIONAL MARINE FISHERIES SERVICE**

Southwest Region  
 501 West Ocean Boulevard, Suite 4200  
 Long Beach, California 90802-4213

May 21, 2002

In Reply Refer to:  
 SWR-00-SA-5653:MTM

Patricia Gouveia  
 Environmental Services Unit  
 State Water Resources Control Board  
 Division of Clean Water Programs,  
 P.O. Box 944212  
 Sacramento, CA 94244-2120

Dear Ms. Gouveia:

This is response to your April 12, 2002 letter (received April 22, 2002), requesting comments on the revised draft EIR (dated October 2001) for the City of Tracy's proposed Wastewater Treatment Plant (WWTP) Expansion Project, San Joaquin County, CA on federally listed Central Valley steelhead (*Oncorhynchus mykiss*) and Central Valley spring-run chinook salmon (*O. tshawytscha*), or their critical habitat, pursuant to the Endangered Species Act of 1973, as amended (ESA). In addition, the proposed project area may effect Essential Fish Habitat (EFH) for Central Valley fall/late fall-run chinook salmon (*O. tshawytscha*) as described in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

As indicated in the October 2001 draft EIR, the City of Tracy Wastewater Treatment Plant Expansion involves the addition of new plant facilities at the existing site to increase plant capacity from 9.0 million gallons per day (mgd) to 16.0 mgd to accommodate increased wastewater inflows. Existing equipment would be upgraded to meet new National Pollution Discharge Elimination System (NPDES) standards anticipated to be issued in 2003 for more stringent federal and state effluent discharge requirements. A new discharge pipeline and diffuser would be constructed and would follow the same route as the existing pipeline. The new outfall diffuser would be located approximately 800 feet downstream of the existing outfall that is currently discharging into Old River. These improvements are required to accommodate planned population growth within the City of Tracy Urban Management Plan (UMP) area, but would not support anticipated wastewater UMP buildout requirements of 32.5 mgd. The project is proposed to be constructed in four phases over a period of approximately 12 years. Indicated in your letter, the U.S. Environmental Protection Agency (EPA) was designated lead agency responsible initiate formal consultation under Section 7 of the Federal Endangered Species Act. The October 2001 draft EIR for the project was provided to the U.S. Fish and Wildlife (USFWS) and National Marine Fisheries Service (NMFS) on April 22, 2002.

20-1



NMFS has reviewed the October 2001 draft EIR and has no additional comments. Even though the October 2001 draft EIR addressed our concerns, issues, and recommendations expressed in our technical assistance letter dated July 17, 2001 (attachment A), we still find that the operation of the Tracy WWTP expansion project is likely to adversely affect federally listed threatened Central Valley spring-run chinook salmon and Central Valley steelhead. In addition, the proposed project may adversely affect EFH for Central Valley fall/late fall-run chinook salmon as described in MSA.

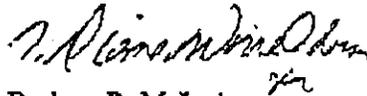
20-2

Because the Tracy WWTP expansion project will have long term direct effects and indirect, interrelated, and interdependent effects associated with the operation, construction and expansion of the facility, NMFS has determined that some level of take of listed species may occur. Under such circumstances, formal consultation under section 7 of the ESA is required. NMFS has sent a letter indicating that the US Environmental Protection Agency (EPA) needs to coordinate with the US Army Corps of Engineers (COE) and request initiation of formal section 7 consultation. This request must accompany an initiation package that involves the requirements listed in 50 CFR § 402.14(c). Once the initiation package is complete and no additional information is needed, the section 7 process allows NMFS up to 90 calendar days to conclude formal consultation and an additional 45 calendar days to prepare our biological opinion.

20-3

We appreciate your continued cooperation in the conservation of listed species and their habitat and look forward to working with you and your staff in the future. If you have any questions regarding this response, please contact Ms. Madelyn T. Martinez in our Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, CA 95814 at (916) 930-3605 or by FAX at (916) 930-3629.

Sincerely,



Rodney R. McInnis  
Acting Regional Administrator

cc: NMFS-PRD, Long Beach, CA  
Stephen A. Meyer, ASAC, NMFS, Sacramento, CA  
Joe Dillon, NMFS-HC, Santa Rosa, CA  
Helen McKinley, EPA-Region 9, 75 Hawthorne Street, San Francisco, CA 94105-3901  
Patricia Gouvca, Environmental Services Unit, State Water Resources Control Board,  
Division of Clean Water Programs, P.O. Box 944212, Sacramento, CA  
94244-2120  
Matt Hirkala, U.S. Army Corps of Engineers, Planning Division, 1325 J Street,  
Sacramento, CA 95814  
Jan Knight, Chief, Endangered Species Division, U.S. Fish and Wildlife Service.

Ecological Services, Sacramento Office, 2800 Cottage Way, Room W-2605,  
Sacramento, CA 95825-1846  
Federal Emergency Management Agency, Region IX, Environmental Officer,  
Presidio Bldg. 105, P.O. Box 29998, San Francisco, CA 94129-1250  
USDA Natural Resources Conservation Service, Resource Technology Staff,  
430 G Street, Suite 4164, Davis, CA 95616-4164

**LETTER 20**

United States Department of Commerce, National Oceanic and Atmospheric Administration,  
National Marine Fisheries Service

May 21, 2002

Rodney R. McInnis

Acting Regional Administrator

**Response to Comment 20-1**

*Introductory Comments.*

Commentor provides introductory remarks to the letter identifying federally listed species that may be affected by the proposed project. Since no comments were made regarding the adequacy of the Draft EIR, no further response is required.

**Response to Comment 20-2**

*Project effects on Central Valley spring-run Chinook salmon and Central Valley steelhead.*

Commentor states that the Draft EIR addressed NMFS concerns regarding special status fish species. Although species were adequately addressed in the Draft EIR, the City anticipates that these concerns regarding these species will be further considered during the Section 7 consultation process which is specifically identified in Mitigation Measure 4.8.4.b. Master Response Section A(3)(f) also addresses the mitigation measures for fisheries and temperature impacts to Old River.

**Response to Comment 20-3**

*Section 7 Consultation.*

Commentor states that the project will require a formal consultation under Section 7 of the Endangered Species Act. The Draft EIR identifies that the project could result in impacts to listed fish species. Mitigation Measures MM 4.6.1a, 4.6.1b, 4.8.4a and MM 4.8.4b include measures and performance standards to avoid impacts and adequately mitigate identified impacts to special status fish species. Specifically, MM 4.8.4b identifies a Section 7 consultation with NMFS and USFWS in conjunction with the Corps Section 10 Rivers and Harbors Act and CWA Section 404 permitting as a requirement to determine appropriate measures to avoid impacts to listed and special status fish species. The City is preparing to comply with this requirement. This effort will include preparation of a Biological Assessment. Consultation is anticipated to be underway by October of 2002. No further response is required. Master Response Section A(3)(f) addresses the mitigation measures for fisheries and temperature impacts to Old River



UNITED STATES DEPARTMENT OF COMMERCE  
 National Oceanic and Atmospheric Administration  
 NATIONAL MARINE FISHERIES SERVICE  
 Southwest Region  
 501 West Ocean Boulevard, Suite 4200  
 Long Beach, California 90802-4213

May 23, 2002

In Reply Refer to:  
 SWR-00-SA-5653:MTM

Helen McKinley  
 EPA-Region 9  
 75 Hawthorne Street  
 San Francisco, CA 94105-3901

Dear Ms. McKinley:

We are writing to express our concerns regarding impacts of the City of Tracy's proposed Wastewater Treatment Plant (WWTP) Expansion Project, San Joaquin County, CA - State Revolving Fund (SRF) Loan on federally listed Central Valley steelhead (*Oncorhynchus mykiss*) and Central Valley spring-run chinook salmon (*O. tshawytscha*), or their critical habitat, pursuant to the Endangered Species Act of 1973, as amended (ESA). In addition, the proposed project may effect Essential Fish Habitat (EFH) for Central Valley fall/late fall-run chinook salmon (*O. tshawytscha*) as described in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

As indicated in the California State Water Resources Control Board (SWRCB) letter dated April 12, 2002 and October 2001 draft EIR, (received April 2, 2002), the City of Tracy Wastewater Treatment Plant Expansion involves the addition of new plant facilities at the existing site to increase plant capacity from 9.0 million gallons per day (mgd) to 16.0 mgd to accommodate increased wastewater inflows. Existing equipment would be upgraded to meet new National Pollution Discharge Elimination System (NPDES) standards anticipated to be issued in 2003 for more stringent federal and state effluent discharge requirements. A new discharge pipeline and diffuser would be constructed and would follow the same route as the existing pipeline. The new outfall diffuser would be located approximately 800 feet downstream of the existing outfall that is currently discharging into Old River. These improvements are required to accommodate planned population growth within the City of Tracy Urban Management Plan (UMP) area, but would not support anticipated wastewater UMP buildout requirements of 32.5 mgd. The project is proposed to be constructed in four phases over a period of approximately 12 years.

NMFS reviewed the October 2001 draft EIR and provided no additional comments because it addressed concerns, issues, and recommendations expressed in our technical assistance letter dated July 17, 2001 (attachment A). However, we still find that the operation of the Tracy WWTP expansion project is likely to adversely affect federally listed threatened Central Valley



21-1

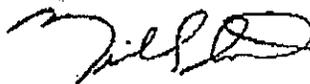
21-2

spring-run chinook salmon and Central Valley steelhead. In addition, the proposed project may adversely affect EFH for Central Valley fall/late fall-run chinook salmon as described in MSA.

Because the Tracy WWTP expansion project will have long term direct, indirect, interrelated, and interdependent effects associated with the operation, construction and expansion of the facility, NMFS has determined that some level of take of listed species may occur. Under such circumstances, formal consultation under section 7 of the ESA is required. The US Environmental Protection Agency needs to coordinate with the US Army Corps of Engineers to request initiation of formal section 7 consultation. This request must accompany an initiation package comprised of the listed requirements in 50 CFR § 402.14(c). Once the initiation package is complete and no additional information is needed, the section 7 process allows NMFS up to 90 calendar days to conclude formal consultation and an additional 45 calendar days to prepare our biological opinion.

We appreciate your continued cooperation in the conservation of listed species and their habitat and look forward to working with you and your staff in the future. If you have any questions regarding this response, please contact Ms. Madelyn T. Martinez in our Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, CA 95814 at (916) 930-3605 or by FAX at (916) 930-3629.

Sincerely,



for Rodney R. McInnis  
Acting Regional Administrator

cc: NMFS-PRD, Long Beach, CA  
Joe Dillon, NMFS-HC, Santa Rosa, CA  
Patricia Gouveia, Environmental Services Unit, State Water Resources Control Board,  
Division of Clean Water Programs, P.O. Box 944212, Sacramento, CA  
94244-2120  
Matt Hirkala, U.S. Army Corps of Engineers, Planning Division, 1325 J Street,  
Sacramento, CA 95814  
Jan Knight, Chief, Endangered Species Division, U.S. Fish and Wildlife Service,  
Ecological Services, Sacramento Office, 2800 Cottage Way, Room W-2605,  
Sacramento, CA 95825-1846  
Federal Emergency management Agency, Region IX, Environmental Officer,  
Presidio Bldg. 105, P.O. Box 29998, San Francisco, CA 94129-1250  
USDA Natural Resources Conservation Service, Resource Technology Staff,  
430 G Street, Suite 4164, Davis, CA 95616-4164

## 2.0 COMMENTS AND RESPONSES

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### LETTER 21

United States Department of Commerce, National Oceanic and Atmospheric Administration,  
National Marine Fisheries Service

May 23, 2002

Rodney R. McInnis

Acting Regional Administrator

### Response to Comment 21-1

#### *Introductory Comments.*

Commentor provides introductory remarks to the letter identifying federally listed species that may be affected by the proposed project. Since no comments were made regarding the adequacy of the Draft EIR, no further response is required.

### Response to Comment 21-2

#### *Project effects on Central Valley spring-run chinook salmon and Central Valley steelhead.*

Refer to Response to Comment 20-2 and 20-3.

### Response to Comment 21-3

#### *Section 7 consultation.*

The issue of a Section 7 consultation has already been addressed. Refer to Response to Comment 20-3.

# State Water Resources Control Board



Winston H. Hickox  
Secretary for  
Environmental  
Protection

Division of Clean Water Programs  
1001 I Street, 16<sup>th</sup> Floor, Sacramento, California 95814 • (916) 341-5667  
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120  
FAX (916) 341-5707 • Internet Address: <http://www.swrcb.ca.gov>  
Electronic Mail: [gouveiap@cwpr.swrcb.ca.gov](mailto:gouveiap@cwpr.swrcb.ca.gov)



Gray Davis  
Governor

JUN 21 2002

RECEIVED

RECEIVED

JUN 25 2002

JUN 26 2002

CITY OF TRACY  
D.E.S

PUBLIC WORKS

Mr. Steve Bayley  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

Dear Mr. Bayley:

FEDERAL CONSULTATION FOR THE CITY OF TRACY (CITY) WASTEWATER TREATMENT PLANT  
EXPANSION PROJECT - STATE REVOLVING FUND (SRF) LOAN NO. (TBD)

On April 12, 2002, the State Water Resources Control Board (SWRCB), Division of Clean Water Programs (Division), submitted the Draft Environmental Impact Report (SCH# 2000012039) prepared for the above project to agencies responsible for implementing applicable federal environmental statutes and regulations. Federal agencies were given 45 days, plus six days mailing time, to review and comment on the proposed project. The review period expired on June 3, 2002.

22-1

Although the National Marine Fisheries Service (NMFS) is the only federal agency to provide written comments (May 21, 2002, letter enclosed), the U.S. Fish and Wildlife Service (FWS) has indicated that they will also be issuing a comment letter for your project. Hopefully, we will receive the FWS comment letter by the end of this month. I will forward a copy of the letter to you for your response as soon as it is received.

22-2

The NMFS is requesting formal consultation under Section 7 of the Endangered Species Act because the project is likely to adversely affect federally listed threatened Central Valley spring-run chinook salmon and Central Valley steelhead and may adversely affect Essential Fish Habitat will have long term direct effects and indirect, interrelated, and interdependent effects associated with the operation, construction and expansion of the facility.

22-3

It is important to note that the District is required to respond to and comply with applicable NMFS requirements before environmental clearance can be approved for this project. Environmental clearance is required prior to SRF funding approval. If you have any questions please contact me at (916) 341-5667.

Sincerely,

Patricia Gouveia  
Environmental Services Unit

Enclosure

cc: Ms. Jantita Licata (w/enc.)  
Environmental Protection Agency, Region 9  
75 Hawthorne Street  
San Francisco, CA 94105-3901

Mr. Rodney R. McInnis (F/SWR-00-SA-5653:MTM)  
U. S. Department of Commerce  
National Oceanic & Atmospheric Administration  
National Marine Fisheries Service- Southwest Region  
501 West Ocean Boulevard, Suite 4200  
Long Beach, CA 90802-4213



## 2.0 COMMENTS AND RESPONSES

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### LETTER 22

State Water Resources Control Board  
June 21, 2002  
Patricia Gouveia  
Environmental Services Unit

#### Response to Comment 22-1

*Introductory remarks.* Commentor provides introductory remarks to the letter. Since no comments were made regarding the adequacy of the Draft EIR, no further response is required.

#### Response to Comment 22-2

*NMFS and USFWS Comments.* Commentor states that the NMFS has submitted comments on the Draft EIR and that the USFWS is anticipated to submit comments as well. Refer to Response to Comment 20-2, 20-3, 21-2, 21-3, 24-4 and 24-5.

#### Response to Comment 22-3

*NMFS request for Section 7 consultation.* Commentor identifies the reasons NMFS has requested a formal consultation under Section 7 of the Endangered Species Act. Refer to Response to Comment 20-3.

# State Water Resources Control Board

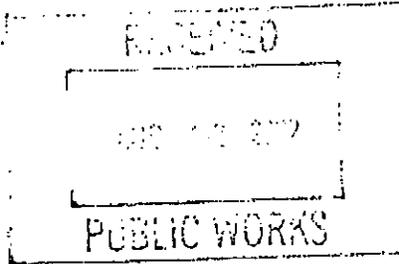
## Division of Clean Water Programs

1001 J Street, 16<sup>th</sup> Floor, Sacramento, California 95814 • (916) 341-5667  
Mailing Address: P.O. Box 944212 • Sacramento, California • 94244-2120  
FAX (916) 341-5707 • Internet Address: <http://www.swrcb.ca.gov>  
Electronic Mail: [gouvciap@ewp.swrcb.ca.gov](mailto:gouvciap@ewp.swrcb.ca.gov)



Winston H. Hickox  
Secretary for  
Environmental  
Protection

AUG - 2 2002



Mr. Steve Bayley  
City of Tracy  
520 Tracy Boulevard  
Tracy, CA 95376

Dear Mr. Bayley:

### FEDERAL CONSULTATION FOR THE CITY OF TRACY (CITY) WASTEWATER TREATMENT PLANT EXPANSION PROJECT - STATE REVOLVING FUND (SRF) LOAN NO. (TBD)

On April 12, 2002, the State Water Resources Control Board, Division of Clean Water Programs, submitted the Draft Environmental Impact Report (SCH# 2000012039) prepared for the above project to agencies responsible for implementing applicable federal environmental statutes and regulations. Federal agencies were given 45 days, plus six days mailing time, to review and comment on the proposed project. The review period expired on June 3, 2002.

23-1

Written comments (letter dated May 21, 2002) from the National Marine Fisheries Service (NMFS) requesting formal consultation were forwarded to you on June 21, 2002. We have just received a comment letter for your project from the U.S. Fish and Wildlife Service (FWS); a copy of the letter is enclosed.

23-2

The FWS is requesting formal consultation under Section 7 of the Endangered Species Act because the project is likely to adversely affect federally listed threatened giant garter snake, threatened Sacramento splittail, threatened delta smelt, threatened valley elderberry longhorn beetle and riparian brush rabbit. Additionally, the project is located in designated critical habitat of the delta smelt.

23-3

AUG - 2 2002

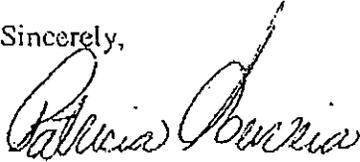
Mr. Bayley

- 2 -

It is important to note that the District is required to respond to and comply with applicable FWS requirements before environmental clearance can be approved for this project. Environmental clearance is required prior to SRF funding approval. If you have any questions please contact me at (916) 341-5667.

23-3

Sincerely,



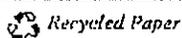
Patricia Gouveia  
Environmental Services Unit

Enclosure

cc: Ms. Juantita Licata (w/enc.)  
Environmental Protection  
Agency, Region 9  
75 Hawthorne Street  
San Francisco, CA 94105-3901

Ms. Jan C. Knight (1-1-02-I-2598)  
United States Department of the Interior  
Fish and Wildlife Service  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846

*California Environmental Protection Agency*



**LETTER 23**

State Water Resources Control Board  
August 2, 2002  
Patricia Gouveia  
Environmental Services Unit

**Response to Comment 23-1**

*Introductory remarks.*

Commentor provides introductory remarks to the letter. Since no comments were made regarding the adequacy of the Draft EIR, no further response is required.

**Response to Comment 23-2**

*NMFS and USFWS Comments.*

Commentor states that the NMFS and the USFWS have submitted comments on the Draft EIR. Refer to Response to Comment 20-2 and 20-3.

**Response to Comment 23-3**

*USFWS request for Section 7 consultation.*

Commentor identifies the reasons the USFWS has requested a formal consultation under Section 7 of the Endangered Species Act. Commentor states that the project may adversely affect the following species: giant garter snake, Sacramento splittail, delta smelt, valley elderberry longhorn beetle and riparian brush rabbit. The Draft EIR considered impacts to giant garter snake, valley elderberry longhorn beetle and riparian brush rabbit. Since construction activities associated with the pipeline are expected occur outside of the winter months and pipeline construction would not involve any trenching or other direct impacts to Paradise Cut or the adjoining riparian areas (*i.e.*, areas immediately adjacent to Old River, Tom Paine Slough, and Paradise Cut that are dominated by hydrophytic vegetation), no impacts to giant garter snake are expected to occur. Since no construction disturbance is expected to occur within the riparian area along Paradise Cut, no impacts to valley elderberry longhorn beetle and riparian brush rabbit are expected. Construction activities are to occur within the active agricultural fields that are routinely plowed and do not provide any habitat for either species. In addition, as identified in Response to Comment 3-1, Mitigation Measure 4.8.5c would require a 300-foot setback from riparian vegetation for construction activities (consistent with the requirements of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan).

Impacts to Sacramento splittail and delta smelt were previously addressed. Refer to Response to Comment 20-3.

## 2.0 COMMENTS AND RESPONSES

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Although all species identified by the commentor were adequately addressed in the Draft EIR, the City anticipates that concerns that might arise as the permitting process proceeds will be further considered during the Section 7 consultation process.



United States Department of the Interior  
FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846

IN REPLY REFER TO  
1-1-02-I-2598

July 23, 2002

Helen McKinley  
Environmental Protection Agency, Region 9  
75 Hawthorne Street  
San Francisco, California 94150-3901

Subject: Endangered Riparian Brush Rabbit, Threatened Giant Garter Snake,  
Threatened Valley Elderberry Longhorn Beetle, Threatened Delta Smelt,  
and Threatened Sacramento Splittail, and the City of Tracy Waste Water  
Treatment Plant Expansion Project, San Joaquin County, California

Dear Ms. McKinley:

The U.S. Fish and Wildlife Service (Service) requests that the U.S. Environmental Protection Agency (EPA), pursuant to 50 CFR 402.13, initiate informal consultation under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*) (Act), as amended, with the Service for the proposed City of Tracy Waste Water Treatment Plant Expansion Project (project) and its potential effects to federally listed species. If a Federal agency is involved with the permitting, funding, or carrying out of a project, then initiation of formal consultation may be required between that agency and the Service pursuant to section 7 of the Act if it is determined that the proposed project may affect federally listed species. Such consultation would result in a biological opinion that addresses the anticipated effects of the project to the listed species and may authorize a limited level of incidental take. The area analyzed by the Service when determining potential effects to listed species in a biological opinion is known as an action area, which is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" 50 CFR § 402.02 (d).

24-1

24-2

The Service received the California State Water Resources Control Board (SWRCB) letter dated April 12, 2002, and the October 2001 Draft Environmental Impact Report regarding the proposed project. These documents were received by our office on April 15, 2002. The proposed project involves the addition of new plant facilities at the existing site to increase plant capacity from 9.0 million gallons per day (mgd) to 16.0 mgd to accommodate increased wastewater inflows. Existing equipment would be upgraded to meet new National Pollution Discharge Elimination System standards anticipated to be issued in 2003 for more stringent federal and state effluent discharge requirements. A new discharge pipeline and diffuser would be constructed that would follow the same route as the existing pipeline. The new outfall diffuser would be located approximately 800 feet downstream of the existing outfall that is currently discharging into Old River. These improvements are required to accommodate planned population growth within the City of Tracy Urban Management Plan (UMP) area, but would not support anticipated

24-3

Helen McKinley

2

wastewater UMP build out requirements of 32.5 mgd. The project is proposed to be constructed in four phases over a period of approximately 12 years.

The Service is specifically concerned with potential effects from the proposed project to the threatened giant garter snake (*Thamnophis gigas*), threatened Sacramento splittail (*Pogonichthys macrolepidotus*), threatened delta smelt (*Hypomesus transpacificus*), threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and riparian brush rabbit (*Sylvilagus bachmani riparius*). Information available to the Service indicates that all of these species are potentially located in the proposed project's action area. The project is also located in designated critical habitat of the delta smelt.

The Service recommends that EPA initiate informal consultation with the Service or designate SWRCB as their representative during the consultation process to address the potential effects to listed species stated in this letter from the proposed project. Please contact Adam Zerrenner or Susan Jones of my staff at (916) 414-6630 or at the address in this letter head regarding the City of Tracy Waste Water Treatment Plant Expansion Project.

Sincerely,



for Jan C. Knight  
Chief, Endangered Species Division

cc:

Army Corps of Engineers, Sacramento, California (Attn.: Nancy Haley and Kathy Norton)  
California Department of Fish and Game, Rancho Cordova, California (Attn.: Dan Gifford)  
California State University of Stanislaus, Turlock, California (Attn.: Dan Williams)  
San Joaquin Council of Governments, Stockton, California (Attn.: Julia Greene, Jerry Park)

24-3

24-4

24-5

### 3.0 ERRATA

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#### ALTERNATIVE OUTFALL SITES

Three alternative outfall sites were evaluated. The evaluation considered the dilution potential and channel geometry that affects the feasibility of outfall construction and maintenance at each site.

##### *Old River west of Doughty Cut*

The Old River west of Doughty Cut is shallow but was considered as a potential wet weather discharge site. Its appeal is its proximity to the treatment plant. Field reconnaissance and review of bathymetry data (1998 US Army Corps of Engineers data) revealed no suitable outfall site. This reach of Old River is characterized by hydraulic depths relative to NGVD of 5' or less and slow moving currents. The bottom elevation of the section between Doughty Cut and Tom Paine Slough is approximately -1' NGVD and dewateres at low tide (without South Delta facilities). The link-node model results also indicate poor circulation in this reach of Old River for all barrier configuration and hydrology. Therefore, no detailed evaluation of this option was performed.

##### *Doughty Cut west of Old River*

Doughty Cut west of Old River has essentially the same net flow as Old River at the existing outfall site. The intratidal flows are greater since it conveys the flow generated by the additional tidal prism of Paradise Cut and the Old River channel west of the existing outfall. The greater intratidal flow was viewed as having the potential for enhanced dilution of the treated effluent.

Figure 1 shows the location of the possible site. Figure 2 shows the channel cross sections (based on 1998 bathymetry data) immediately west of the confluence with Old River and a possible diffuser port line. Note the considerable variation in channel geometry resulting from a transition of the dominant flow from one side of the channel to the other. Due to the channel alignment, the current hugs the northerly side of the channel east of the diffuser site. A scour hole and bank cutting is evident in this reach. The current west of the site hugs the southwesterly shore and a scour hole and bank cutting is also evident. These channel characteristics strongly suggest an unstable bottom configuration since scour holes tend to migrate as bank cutting progresses. These conditions make outfall stability problematic. Therefore, this site was deemed unacceptable.

Additionally, the increased intratidal flow rate was countered by a larger cross section area that resulted in slightly lower intratidal velocities. The lower velocities combined with a depth of 10' relative to NGVD resulted in poorer initial dilution characteristics than in Old River in the vicinity of the existing outfall. A third factor that discredits this site is that it is within the "primary zone" of the Delta. In this area, wastewater water discharges are restricted (Delta Protection Commission, 1992). Therefore, no additional evaluation of this location was performed.

##### *Old River 800' west of the existing outfall*

Old River in the vicinity of the existing outfall is shown in Figure 3. The channel west of the diffuser is straight and uniform and is deeper than at the existing outfall. The channel uniformity is seen in Figure 4. Figure 4 shows the channel cross sections (based on 1998 bathymetry data) on either side of the proposed supplemental outfall. The straight and uniform channel suggests stable channel conditions. Its appeal is its proximity to the treatment plant and pipeline rights-of-ways and is located outside of the "primary zone" of the Delta,

Far-field Analysis

The far-field analysis was designed to predict the fate of the wastewater and its impacts within the Bay and Delta system. The ultimate fate and water quality impacts of the treated effluent is influenced by the complex hydrology of the Sacramento – San Joaquin River Delta. An estimate of the City of Tracy treated effluent fraction within the Delta was computed to assess related impacts on water supply quality and ambient water quality. The major water supply export locations include:

1. Central Valley Project (CVP) - Tracy pumping plant / Delta Mendota Canal Intake
2. State Water Project (SWP) – Old River at the Clifton Court Intake
3. Contra Costa Water District (CCCWD) – Old River at the Contra Costa Water Intake

The analysis also provides an estimate of the treated effluent fraction of the ambient water in Old River at the existing and proposed outfall to show the maximum impact of the discharge. Due to the flow constraints imposed by the temporary and proposed permanent barriers, the treated effluent impacts were presented for the periods of April and May, June through September, October and November and December through March. The effluent fraction reaching the San Joaquin River was also evaluated.

The link-node modeling system contains a hydrodynamic model that computes velocities and stage at 90-second intervals. The link-node tidally averaged water quality model simulates the long-term transport and fate of a discharge to the Delta system. The network representation of the Bay and Delta was developed jointly by RMA, DWR and others. The model was calibrated for flow and transport using field data for EC or TDS (Smith and Durbin, 1989).

During this project, additional hydrodynamic simulations were performed to verify that the model adequately represents the flow and stage within the southern Delta. Typical results of this verification effort are presented an Appendix A.

The model simulates flow, stage and water quality over the 1922-1995 hydrologic year period using monthly hydrologic data generated by the DWR operations models (DWRSIM). Two operation study results were used to cover the range of future Delta operation scenarios being considered in the ongoing CALFED evaluation of Delta operation (CALFED, 1999).

The following Delta configuration and CALFED operation alternatives were evaluated.

1. CALFED No-action alternative with present Delta configuration without barriers
2. CALFED No-action alternative with present Delta configuration and temporary Old River fish barrier
3. CALFED No-action alternative with present Delta configuration and temporary South Delta barriers
4. CALFED No-action alternative with enhanced Delta configuration and proposed permanent barrier
5. CALFED Preferred alternative with enhanced Delta configuration and proposed permanent barrier

The link-node model was used to compute the average daily fraction of Tracy treated effluent throughout the Delta and at export locations for the entire 73-year hydrologic period of 1922 - 1995. The incremental changes in dissolved oxygen levels in the Southern Delta were also evaluated.

### 3.0 ERRATA

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**ANALYSIS OF THE FATE AND WATER QUALITY IMPACTS OF THE CITY OF TRACY DISCHARGE**  
Resource Management Associates  
May 15, 2001

#### BACKGROUND

The City of Tracy discharges treated effluent into the Southern Delta at Old River approximately one mile east of Doughty Cut. The present permitted capacity of 9 MGD is inadequate to accommodate the anticipated population increases within the City's service area. The capacities of the outfall, pumping facilities and diffuser are also inadequate to accommodate the anticipated peak wet weather flow (PWWF) associated with average dry weather flow (ADWF) of 16 MGD.

Old River at the existing outfall location is tidally influenced and flow reversals occur daily. Historically, this section of Old River was a major conveyance channel connecting the San Joaquin River to the interior of the Southern Delta. Unregulated, the net flow within the channel increases as a function of the San Joaquin River flow and CVP and SWP pumping. Intratidal flows are a function of the tidal prism within Old River and the San Joaquin River and the phase lag of the two flow paths to the Old River – San Joaquin River confluence (i.e., South Delta interior versus San Joaquin River).

Several temporary barriers and proposed flow control structures affect flows within Southern Delta channels including the Old River channel at the existing outfall location. The controlled flows impact the flow conditions and assimilative capacity of the Old River at the existing diffuser site. Since a new or auxiliary outfall is required to accommodate increased effluent flows, alternative outfall sites were evaluated. Near-field and far-field impacts of the effluent on water quality were evaluated using the following approaches.

#### Near-field Analysis

The near-field analysis utilized the CORMIX plume model to evaluate initial dilution in the vicinity of the existing and candidate diffuser. Independent plume modeling was performed (CH2M, 2001) using the EPA's new Visual Plumes (VP) mixing zone model. The updated 3-dimensional MERGE model (UM3) within VP was used for the analysis. It was checked using DKHW, the VP version of UDKHDEN. All models predicted comparable levels of dilution; however, the CORMIX model predicted a slightly larger mixing zone. Therefore the CORMIX model results are presented as a conservative estimate of the nearfield initial dilution.

Temperature increase and ammonia toxicity were evaluated for the critical low velocity conditions that persist under certain temporary and proposed permanent barrier configurations.

Old River resembles a slow moving stream under the controlled flow conditions. A heat balance temperature analysis was performed based on the channel geometry, net flow and intratidal flows to estimate the background thermal impact of the discharge. The incremental change predicted by the CORMIX model was superimposed on the background increment to assess the potential thermal impact of the discharge. This analysis considered the seasonal operation of the various barrier scenarios for an 12-year meteorological data record.

This section lists all text changes, corrections, and additions that were made to the Tracy Wastewater Treatment Plant Expansion Draft EIR. These modifications were made as a result of comments received during the Draft EIR public review period.

This summary of changes, or errata, addresses various sections of the Draft EIR. The changes herein do not constitute new significant information or result in any new significant impacts that would require recirculation of the Draft EIR pursuant to CEQA Guidelines Section 15088.5. Changes are shown in underline and ~~strikethrough~~.

### 3.0 PROJECT DESCRIPTION

The text on page 3-26 has been revised as follows, via Errata:

~~“San Joaquin County Community Development Department Planning Department and San Joaquin County Public Works Department. Construction activities occurring in roadways and lands located in unincorporated County lands would require permits from the San Joaquin County Development Department Planning Department (site approval) and San Joaquin County Public Works Department (grading).”~~

### 4.1 LAND USE

The last paragraph on page 4.1-1 in Section 4.1 Land Use has been modified through Errata to include the following description of these lands:

“As stated above, the existing outfall pipeline is located within the right-of-way of Arbor Avenue, MacArthur Drive, and Delta Avenue as well as through agricultural lands north of Delta Avenue and between Paradise Cut and Old River. Lands north of Delta Avenue and south of Paradise Cut are designated General Agriculture on the San Joaquin County General Plan Map with AG-40 zoning (Van Buren, pers. comm., 2001). Several parcels in this area are under Williamson Act Contracts, however the existing pipeline is considered a permitted use within contract lands. Lands between Paradise Cut and Old River are designated Open Space Resource Conservation with AG-40 zoning.”

### Appendix E

The Mountain House Community Service District project will be added to Appendix E, by Errata.

### Appendix G

*Commentor stated that there are gaps in text and tables in Appendix G of the Draft EIR. Appendix G in its entirety, including all figures and tables, is provided as part of this errata, some of this information was inadvertently omitted from the Draft EIR. The Appendix does not contain any new information which would change the analysis or conclusions of the document.*

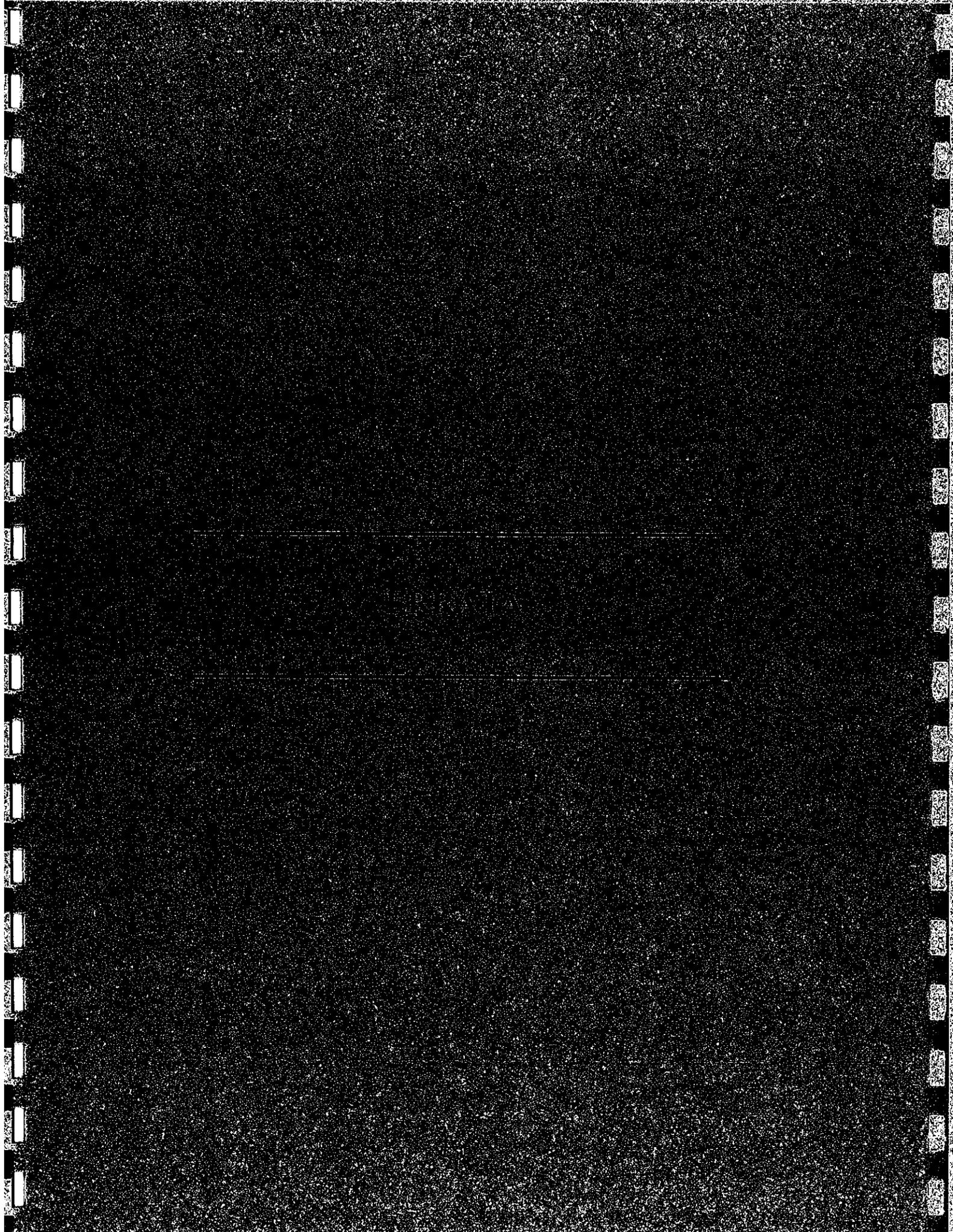


Figure 1. Location of candidate outfall site in Doughty Cut

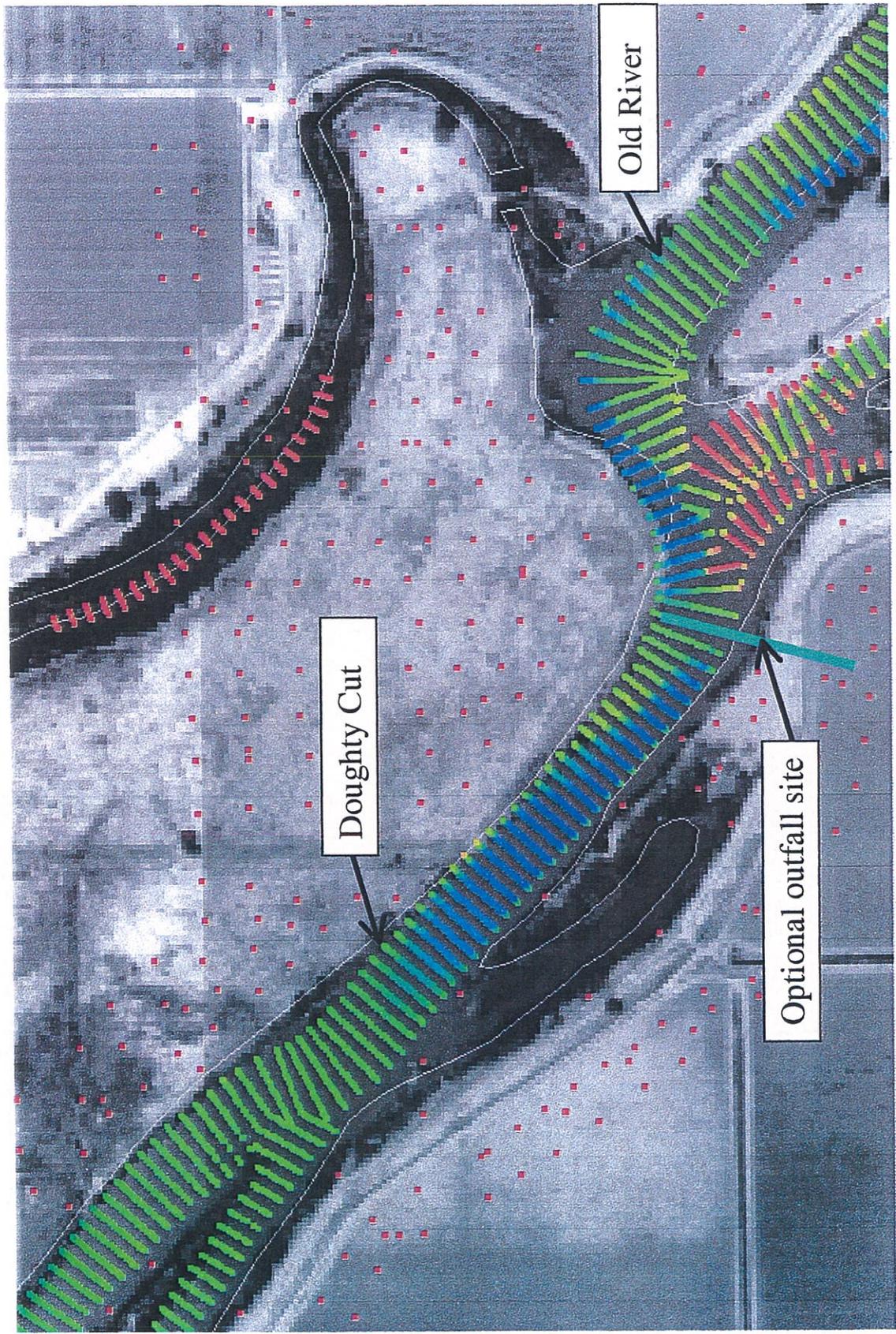


Figure 2. Channel cross sections near the candidate outfall site in Doughty Cut

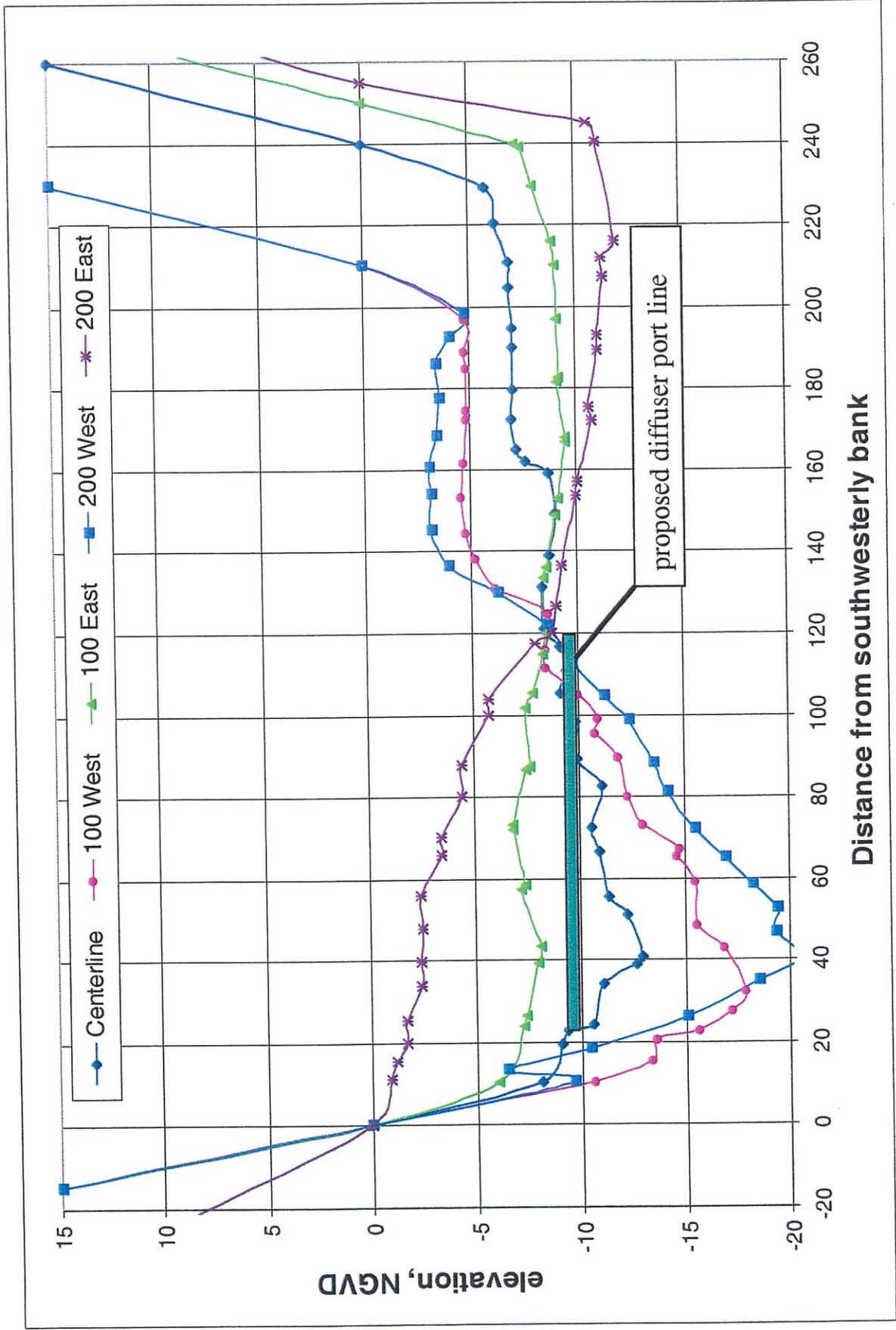


Figure 3. Location of the existing and proposed new outfall in Old River

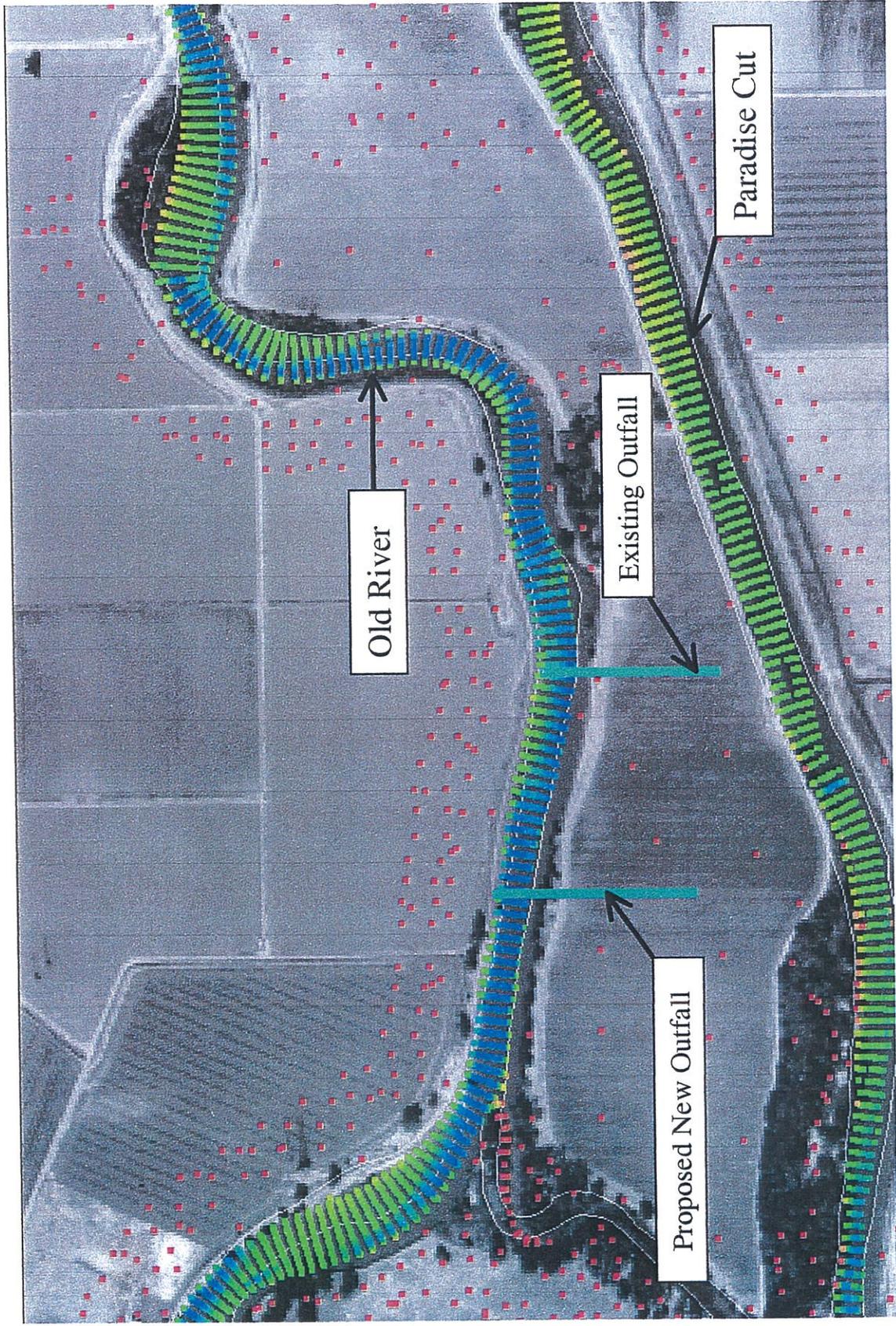
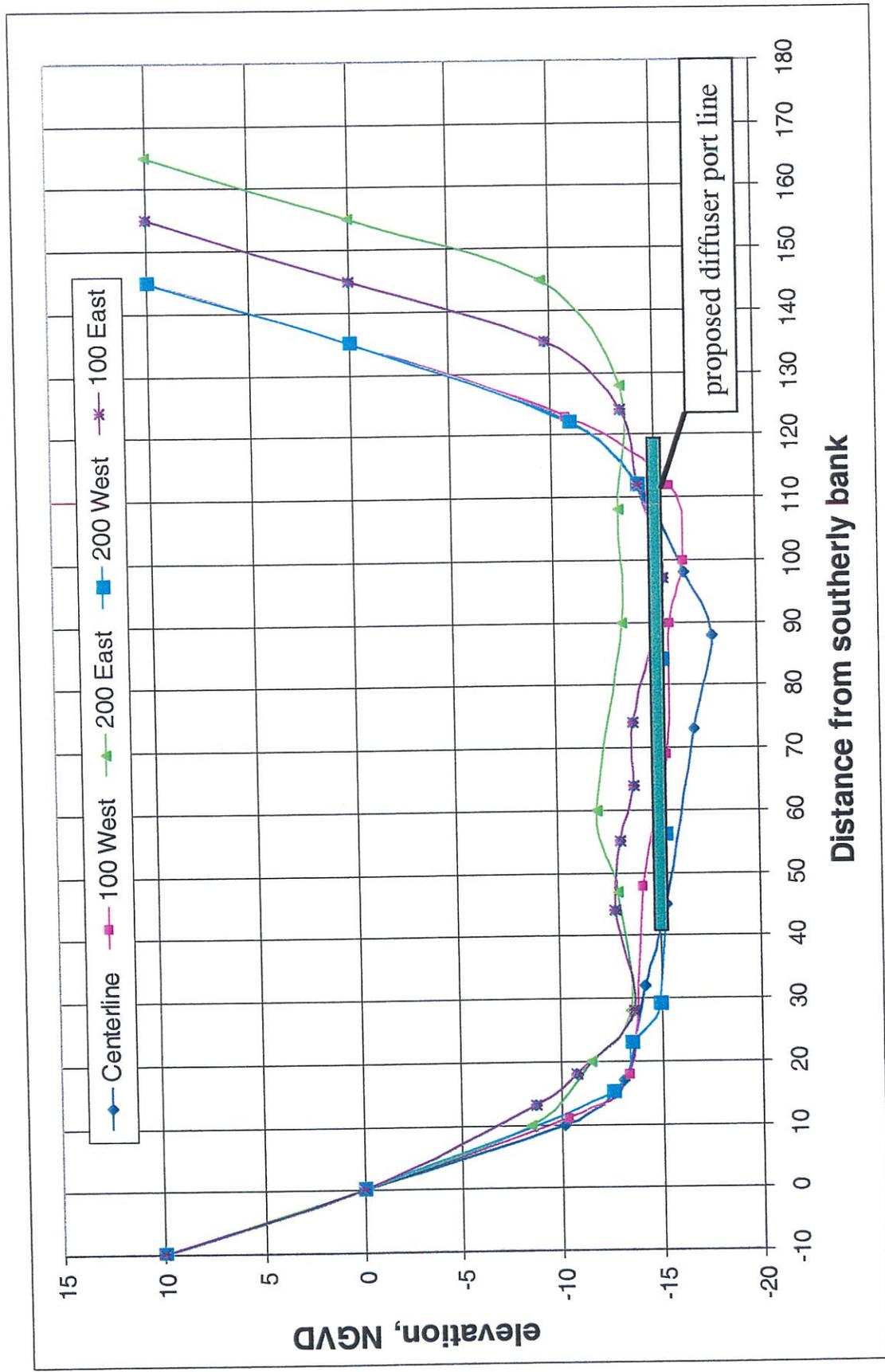


Figure 4. Channel cross sections near the proposed new outfall site in Old River  
800' west of the existing outfall



By the process of elimination, an outfall located west of the existing outfall was deemed the only practical option for in-Delta disposal of the anticipated increase in the City of Tracy discharge. The analysis described in the following sections assumes a supplemental outfall located in Old River 800' west of the existing outfall.

DESIGN HYDRAULIC CONDITIONS

CALFED has performed numerous DWRSIM operations model simulations to evaluate various scenarios for managing the water resources of the Sacramento and San Joaquin River systems. These operation studies are summarized in the CALFED EIR/EIS draft programmatic Attachment A. Two no-action and eight preferred alternatives are summarized in the draft CALFED document. The monthly hydrology for the following operation studies were used to cover the range of future Delta operation conditions being considered in the CALFED evaluation of Delta operation.

- No-Action; 2020D09C-CALFED-785
- Preferred Alternative without Hood Diversion; 2020D09C-CALFED-789

Model boundary conditions include the San Joaquin and Sacramento Rivers and other major rim inflows, in-Delta consumptive use and export rates on a monthly time interval. In-Delta consumptive use rates were allocated to individual network elements based on historical inflow and withdrawal patterns.

A wet weather flow increment for the City of Tracy discharge rate was computed as a function of the net channel depletion defined by the operations model. The net channel depletion represents in-Delta use less precipitation. The wet weather increment, which was defined as an inverse linear relationship with the net channel depletion, varied between 0 and 16 MGD. Therefore the total wastewater inflow ranged between 16 and 32 MGD. (Note that the 32 MGD monthly average wet weather flow should not be confused with the 38 MGD PWWF.) This approach results in wet weather flow increments that respond to hydrologic conditions. As an example, no wet weather increment would be added for January 1976 (drought) and a 16 MGD increment would be added for January 1978 (end of drought).

Tidal inputs at the Bay boundary near Benicia assume a typical diurnal tide.

The operation of the Delta cross channel, Old River fish barrier, Clifton Court gates and the south Delta Facilities are not specified by DWRSIM. Therefore, several Delta operation assumptions were evaluated to cover the range of flow control possibilities. These operation assumptions are based on our understanding of current operation philosophies gleaned from information provided by the DWR (Nelson, 2000) and our conversations with Steve Roberts, Chief of Division of Planning and South Delta Planning, DWR. A total of four operation alternatives were evaluated assuming the CALFED no-action case and various barrier configurations. For the analysis of a fifth operation alternative, the CALFED preferred alternative was assumed with permanent South Delta facilities.

CALFED No-Action Operation without south Delta facilities and Old River fish barrier

The south Delta facilities including the Old River fish barrier are temporary in nature and may not be installed during some years. Therefore, the first scenario simulated was the CALFED no-action alternative without these facilities. The following gate and barrier operations were assumed.

**Delta Cross Channel, Clifton Court gate and Old River Fish Barrier**

*Defined above*

**South Delta Facilities**

*(The south Delta facilities consist of three temporary structures designed to maintain water surface levels in the Southern Delta. They utilize 48-inch pipes equipped with flap gates to force uni-directional flows to the east. Based on the most recent installation, a six and nine pipe configuration was assumed for Middle and Old River barriers respectively. Six pipes were assumed for the Grantline Canal installation, however three of the pipes were assumed to allow flow in both directions to prevent water stagnation east of the barriers. Each barrier incorporates a weir that allows flow in either direction above the crest elevation ranging from 1' - 2' NGVD. The hydraulic characteristics are based on DWR specifications of 1996-97.*

- Old River and Middle River barriers in place from April to September
- Grantline Canal barrier in place from June to September

CALFED No-action scenario with enhanced Delta configuration and permanent barrier

The Delta infrastructure assumed for this configuration is based on our understanding of likely improvements that were gleaned from information contained in the CALFED draft programmatic EIR/EIS; Attachment A. The following gate and barrier operations were assumed.

**Delta Cross Channel**

*Defined above*

**Clifton Court gate**

*(The proposed Byron diversion point was assumed south of the Conta Costa Water intake on Old River and the existing gate structure was assumed closed. The Byron gates were operated to maintain a uniform inflow velocity.)*

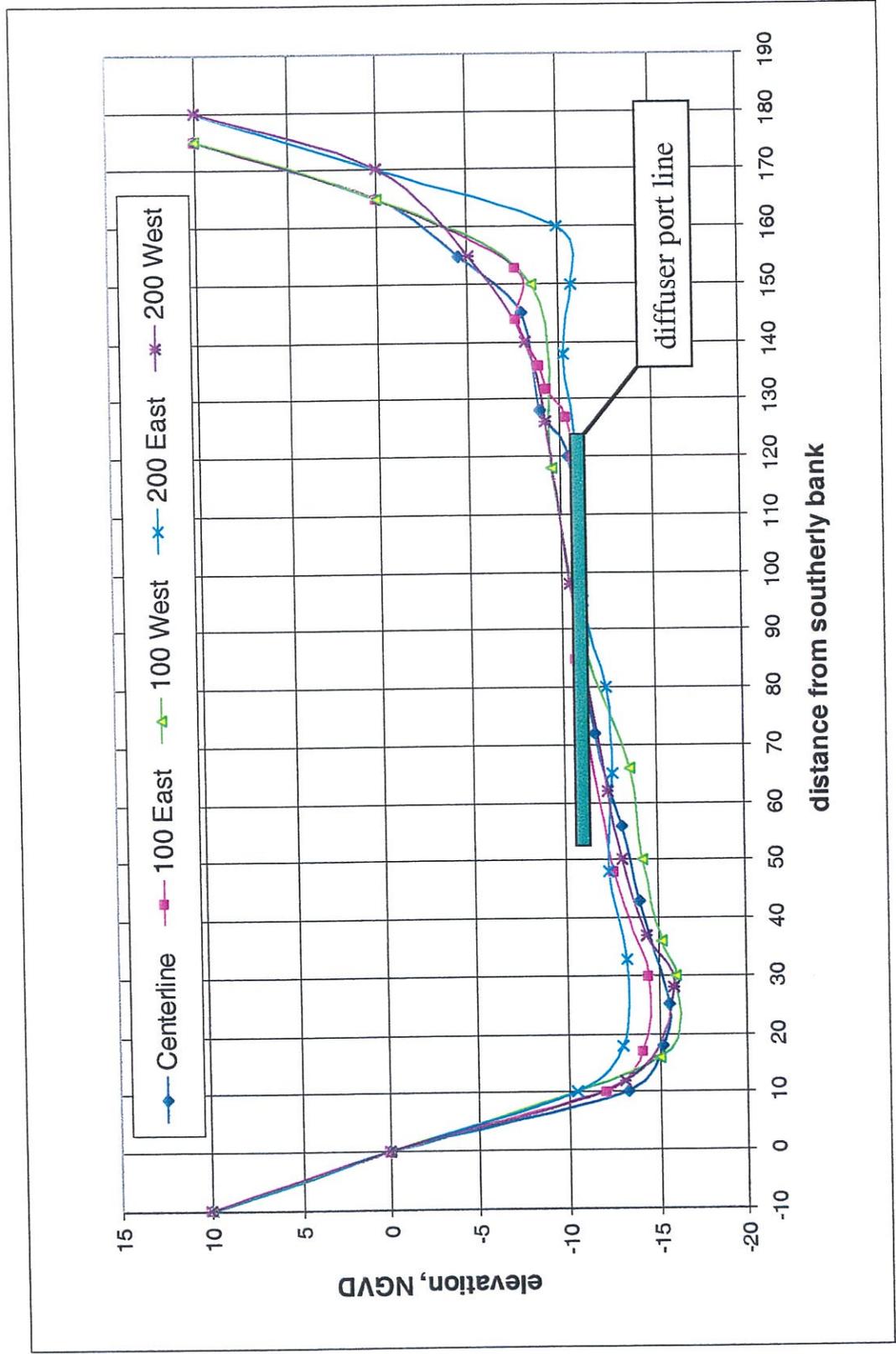
- Always open with inflow velocity control

**South Delta Facilities**

*(The permanent south Delta facilities and Old River fish barrier will have gates that operate to control channel flow and stages between the barriers and the San Joaquin River. The timing and operation were assumed as follows except when the San Joaquin River exceeds 7,000 cfs.)*

- Old River and Middle River barriers in place from April through October. Each radial gate was assumed open on the raising tide and closed on the falling tide.
- Grantline Canal barriers in place from June through October. Each radial gate was assumed open except for the three hours preceding higher low water and four hours preceding lower low water.
- Old River fish barrier radial gates were assumed closed during the months of April, May, October and November.

Figure 5. Old River channel cross sections near the existing City of Tracy outfall site



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surface turbulence and the customary effluent odor was present. These observations were made possible by the calm wind and resulting flat water surface.

Preliminary design goals for the new diffuser included:

1. Passive split of flow (controlled by hydraulic capacity of the diffuser) between the existing and new diffusers from a common outfall pipeline such that adequate initial dilution is achieved for the range of anticipated flows (e.g., ADWF = 16 MGD and PWWF = 38 MGD).
2. Dilutions in the order of 20:1 prior to plume surfacing to avoid the conditions described above.
3. Prevention of back-flow into the diffuser port at low discharge rates to prevent sediment from entering the diffuser.

Each of these goals can be achieved in part by equipping all diffuser ports with Tideflex® back-flow prevention valves marketed by Red Valve, Inc. The Tideflex valve opening enlarges as the flow and pressure within the diffuser increases. Therefore, the exit velocity is non-linear function of flow. Back-flow is eliminated and the minimum exit velocity should preclude sediment from entering the diffuser.

The preliminary design for the proposed diffuser incorporates twelve 8-inch ports at 7 foot centers. All ports are horizontal and directed downstream. The port elevations were -15' NGVD. All existing and proposed diffuser ports were assumed to be equipped with the Tideflex valves. If the Tideflex valves are not used, 6" ports would be required on both diffusers. A detailed description of the initial dilution is provided later in this section.

#### *Ambient velocity and depth*

The flow and velocity in Old River at the proposed and existing outfall sites is impacted by the permanent and temporary barriers. The flows, velocities and depths computed at 30-minute intervals during each month of the 73-year evaluation period at both outfall sites were evaluated to determine the minimum average velocities, flows and depth for the range of hydrology and operating assumptions.

Figure 6 shows velocities over the tidal cycle for each operation assumption corresponding to the monthly hydrologic conditions that produced the minimum average velocity. Note that prolonged periods of velocities less than 0.3 ft/sec occur during June for each case where the temporary or permanent barriers are in place. Also note that the two cases assuming permanent barriers are identical since there is no difference between the flows of the CALFED no-action and preferred alternative for the month (June 1993) that produces the minimum flow condition.

The velocity plot for the no fish barrier case corresponds to a San Joaquin River flow of 1,285 cfs. The minimum flow passing the Old River fish barrier configuration (weir elevation = 0' NGVD) occurs under this flow conditions because the average differential on either side of the barrier is at a minimum.

Table 1 shows the minimum average velocity, flow and depth at the proposed outfall over the tidal cycle for the periods of April and May, June through September, October and November and December through March. The table does not include averages at the existing outfall since the depth and flows are essentially the same. The velocity at the existing outfall is approximately 16% higher due to the smaller cross section area.

**Figure 6. Computed intratidal velocity corresponding to the minimum monthly mean velocity in Old River at the existing City of Tracy Outfall for the five flow / operation conditions**

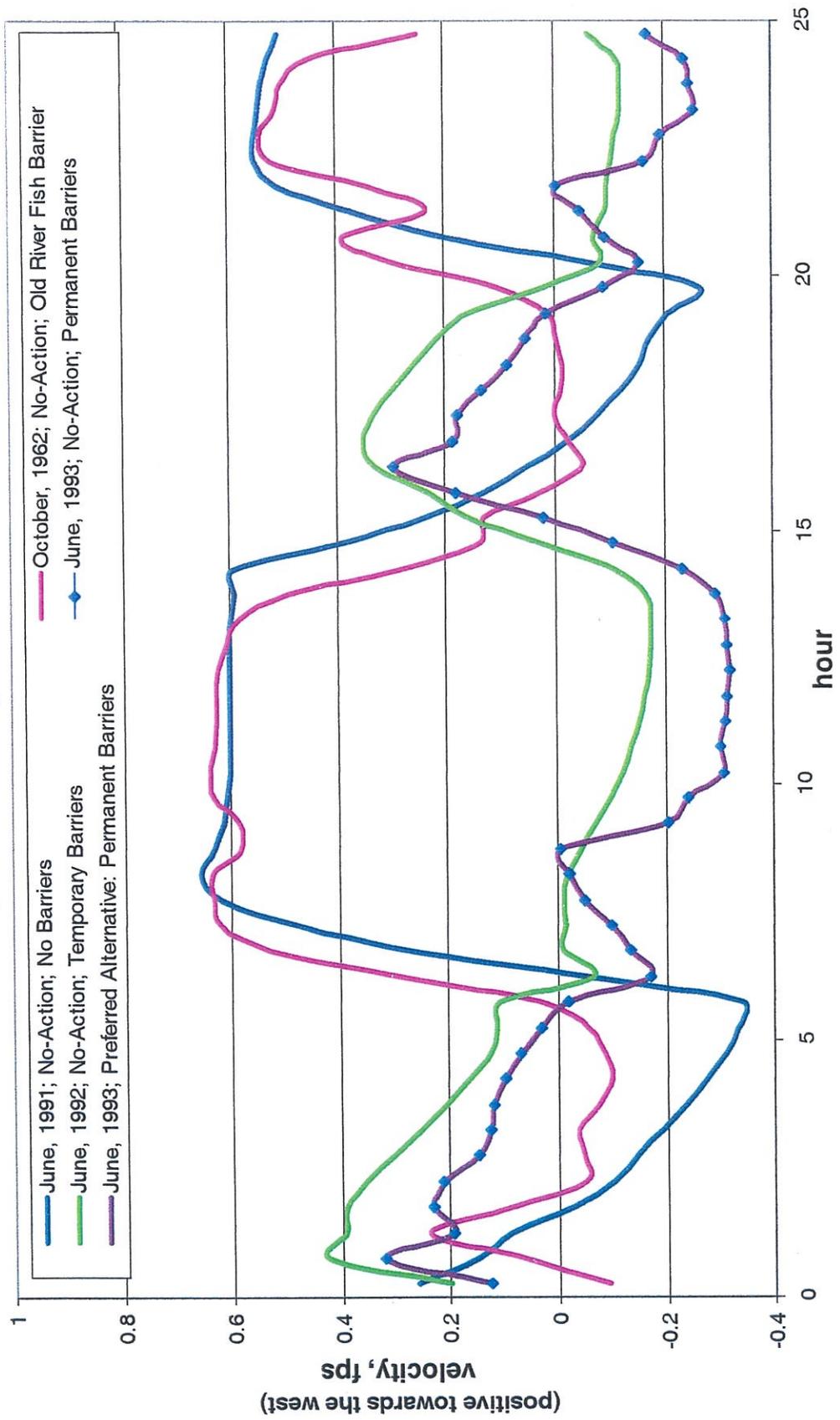
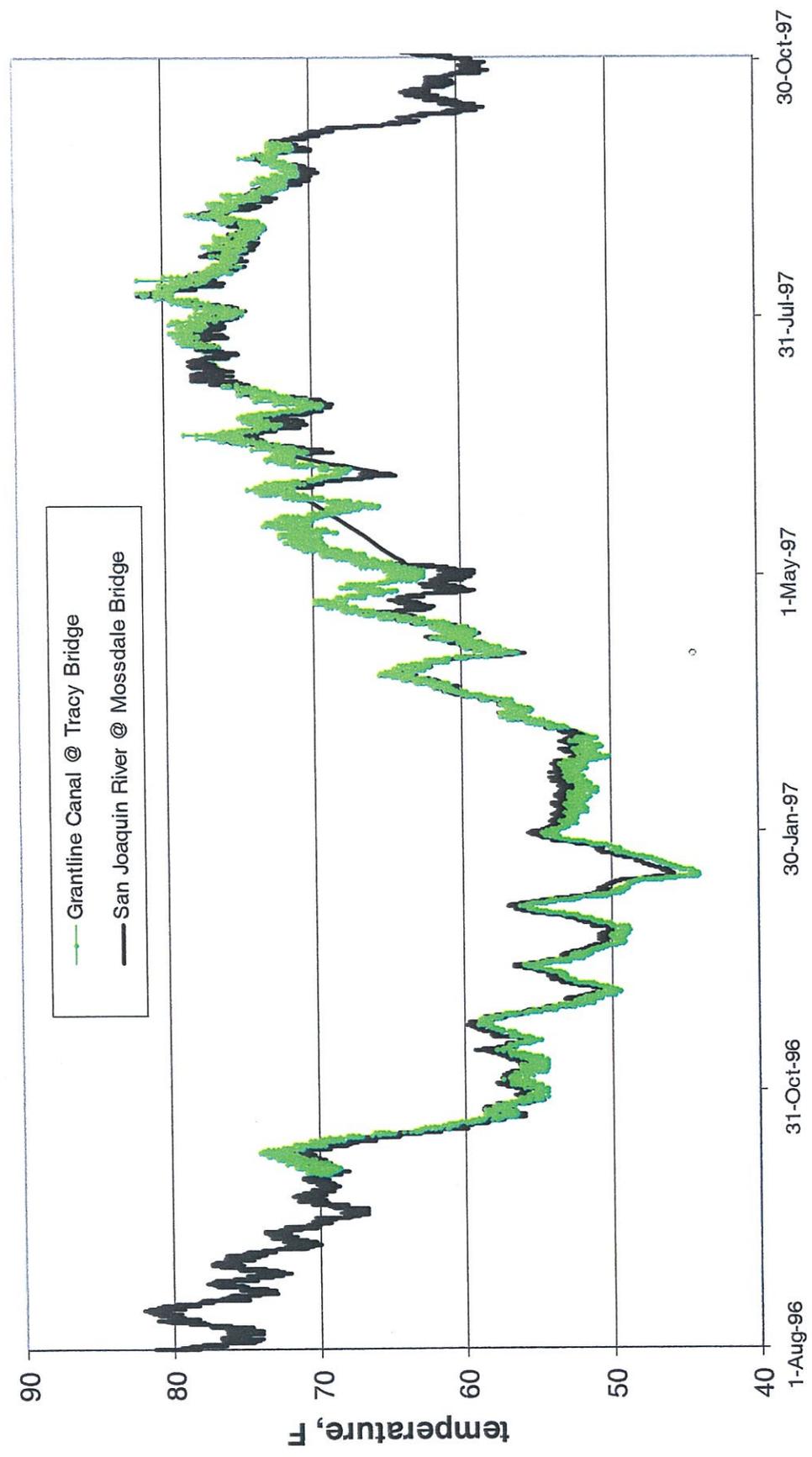


Table 1

Mean Old River water surface elevation, flow and velocity at the site of the proposed outfall for various seasons, Delta configuration and Delta operating assumptions

Condition	December, January, February and March				April and May				June, July, August and September				October and November			
	Date	elev, NGVD	flow, cfs	Velocity, fps	Date	elev, NGVD	flow, cfs	Velocity, fps	Date	elev, NGVD	flow, cfs	Velocity, fps	Date	elev, NGVD	flow, cfs	Velocity, fps
No-action, no barriers	Feb-92	1.30	849	0.416	May-32	1.32	905	0.444	Jun-91	0.95	718	0.357	Oct-78	1.30	876	0.430
No-action, Old River fish barrier only	Feb-92	1.30	849	0.416	May-91	1.04	917	0.447	Jun-91	0.95	718	0.357	Oct-62	0.35	586	0.301
No-action, temporary barriers	Feb-92	1.30	849	0.416	May-91	1.11	919	0.446	Jun-92	1.62	340	0.160	Oct-62	0.35	584	0.301
No-action with permanent barriers	Feb-92	1.32	834	0.408	May-91	1.19	1008	0.487	Jun-93	1.43	343	0.164	Nov-61	0.52	810	0.411
Preferred alternative, permanent barrier	Feb-92	1.31	833	0.408	Apr-32	1.15	1012	0.491	Jun-93	1.43	342	0.164	Nov-73	0.38	769	0.395

Figure 7. Observed water temperature in the San Joaquin River and in Grantline Canal



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comparable to the Mossdale temperature record. The pH at Mossdale is influenced by upstream biological activity that depletes dissolved CO<sub>2</sub> and is unusually high when compared to most fresh water environments. As the water progresses through the Delta, respiration of plankton and decay of organic material replenish the CO<sub>2</sub> and the pH decreases. To quantify the expected decrease, available pH data in the vicinity of the outfall were paired (by sampling time) with the pH at Mossdale. The results of this comparison are shown in Figure 8. There is considerable variation between the two data sets, however there is a clear bias towards lower pH values within the Delta interior. The regression coefficient of 0.9395 is consistent with the ratio of the maximum observed pH values (i.e., 8.8 / 9.32 = 0.9442). Therefore, the ammonia toxicity analysis was based on the Mossdale Bridge pH adjusted by a factor of 0.95. It should be noted that during periods when barriers are in place, little or no San Joaquin River water reaches these interior Delta monitoring stations via Old River which may contribute to the weak correlation.

#### Modeling Approach

The initial dilution of the effluent plume was evaluated for the range of flows and temperature conditions described above. The minimum dilution is expected at the lower range of average current velocities that vary between 0.2 and 0.5'/sec. Tidal effects result in near slack conditions for all operation conditions considered in the analysis. Therefore, model sensitivity to velocities of this magnitude was evaluated. The dilution at the time the plume surfaces was used for comparison. Since the plume surfaces more quickly with larger temperature differences and shallower depths, the largest temperature difference of Table 2 and shallowest depth (existing outfall) was evaluated.

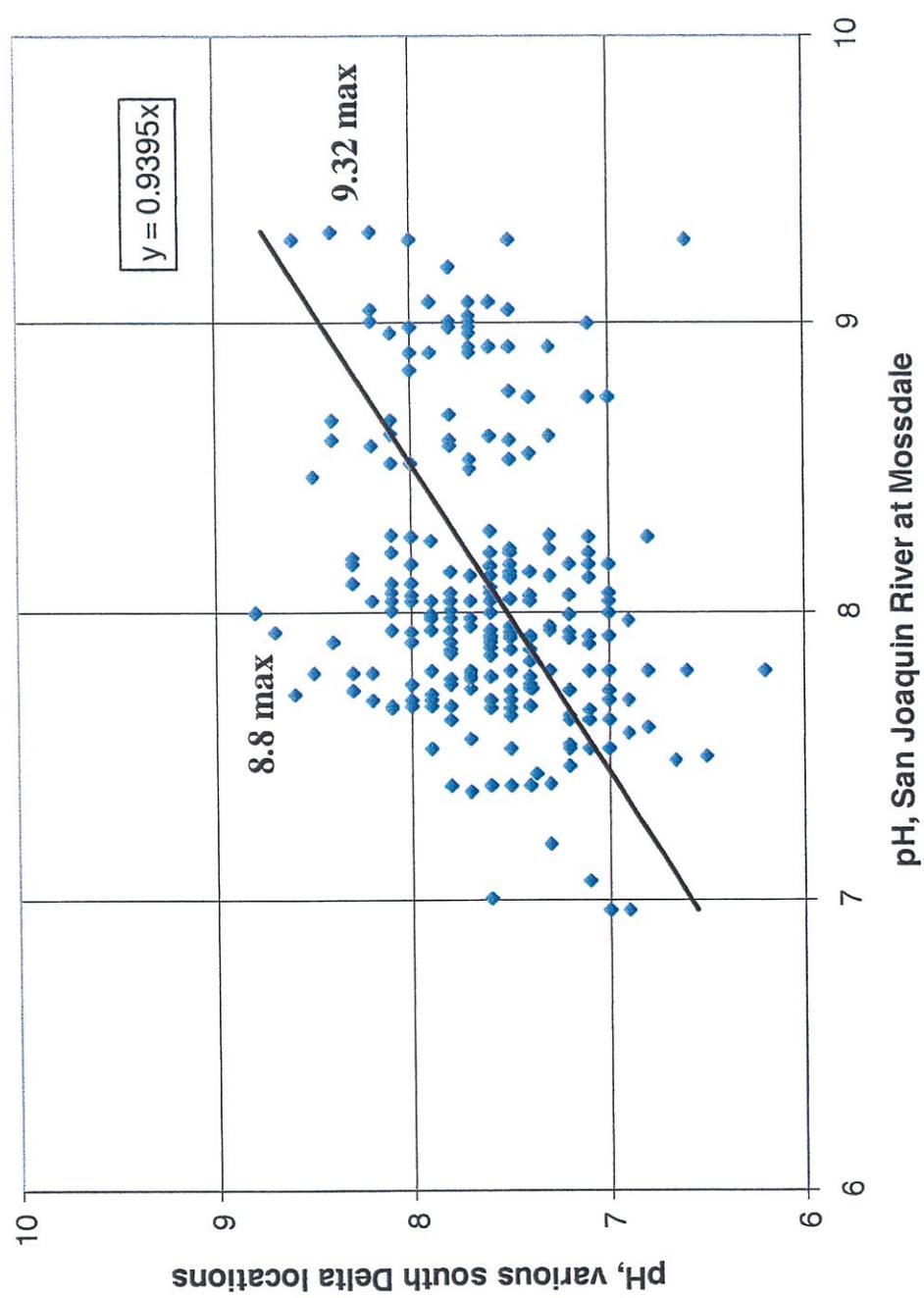
The model sensitivity analysis indicated that the initial dilution is dominated by the high exit velocity relative to the low current velocities (< 0.5 fps) and the temperature differences are of minor importance. The range of predicted dilution ratio and the distance for the plume to surface is summarized in Table 3.

Table 3  
Computed dilution ratios and distance to surfacing of the plume for the anticipated range of flows and current velocities

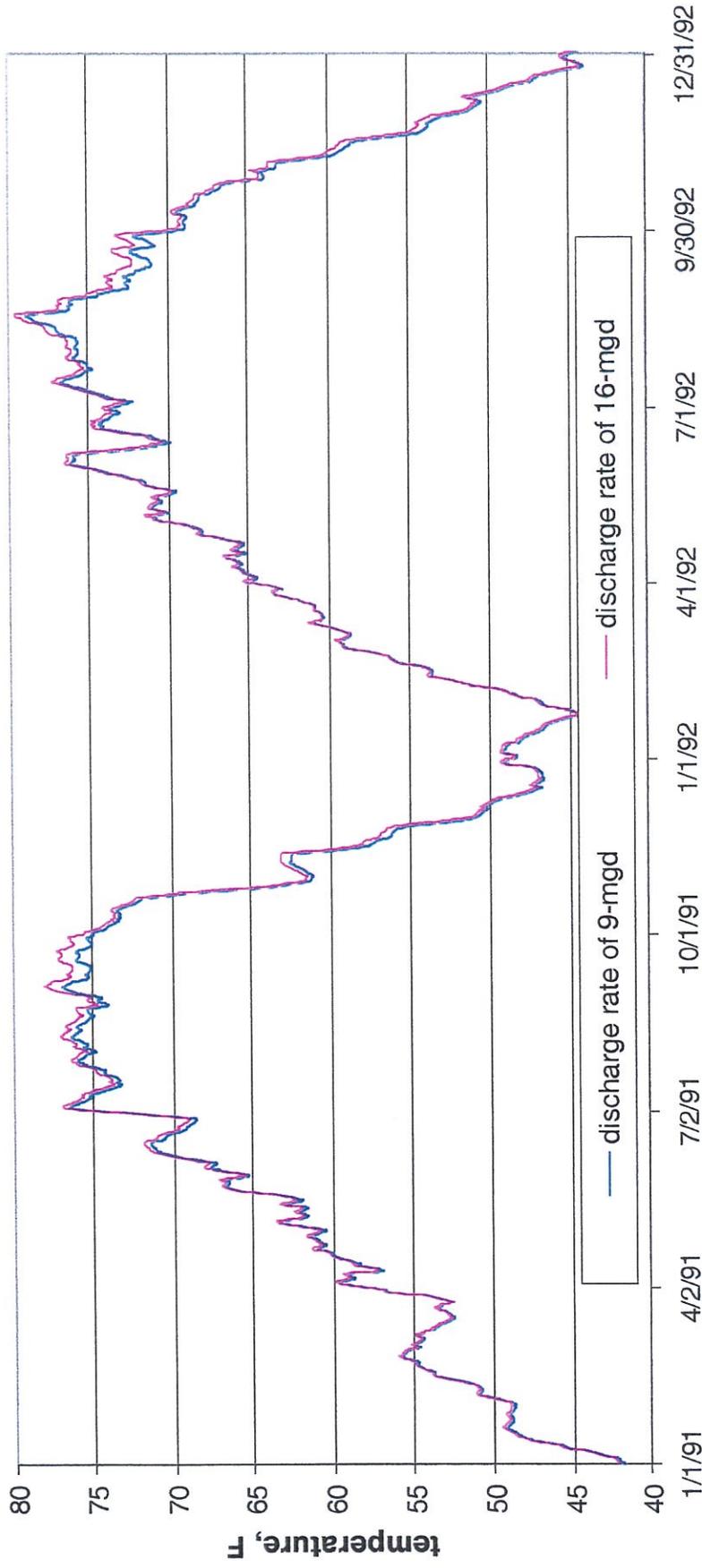
Total discharge rate, MGD	Port exit velocity, fps	Current velocity, fps	Equivalent channel flow, cfs	Dilution ratio @ plume surfacing	Distance to plume surfacing
16	10	0.05	85	21:1	36
16	10	0.5	850	46:1	38
38	16.2	0.05	85	17:1	36
38	16.2	0.5	850	26:1	39

The plume surfaces within 40 feet of the outfall in all cases. Dilution ratios were approximately 20% higher for the proposed outfall. Dilution ratios were approximately 10% lower when 6" ports without the Tideflex valves were assumed.

Figure 8. Observed pH at various South Delta locations versus the pH in the San Joaquin River at the Mossdale Bridge



**Figure 9. Computed temperature in Old River in the vicinity of the existing outfall with a Tracy discharge rate of 9-mgd and in the vicinity of the proposed outfall with a Tracy discharge rate of 16-mgd**



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#### Temperature Analysis

Old River resembles a slow moving stream under the controlled flow conditions. To assess the incremental temperature impacts of repetitive dosing of the water body with increased effluent volume, a heat balance temperature analysis was performed. The analysis considered the channel geometry and the monthly minimum net flow and intratidal flows for the critical barrier condition (lowest monthly net flow among the 5 cases). The 12-year meteorological data record (hourly data from 1989 to 2000) for the Modesto CIMIS station was used to compute the heat transfer at the air-water interface. The analysis generated computed temperatures for the Old River at thermal equilibrium and the increase in temperature results from an increase in the discharge rate from 9-mgd to 16-mgd and the effluent temperature listed in Table 2. The temperature at equilibrium assumption is conservative since the River's sensitivity to the heated effluent decreases with the departure from equilibrium.

Typical results of this analysis are shown in Figure 9. The computed temperatures for the 1991 – 1992 drought years are shown to provide temporal resolution. The seasonal response for all other years was similar. Keep in mind that the critical month flow conditions was assumed so that this analysis provides the upper envelope (worst case) of the thermal impact potential.

Table 4 shows the average increase in temperature by month over the 12 year period. The incremental change predicted by the CORMIX model (i.e., 21:1 dilution) was superimposed on the background increment to assess the maximum potential thermal impact of the discharge at the limits of the mixing zone (< 50' on either side of the diffuser).

**Table 4**  
**Maximum potential seasonal impacts of the City of Tracy discharge at the**  
**anticipated discharge rate of 16-MGD on the water temperature of Old**  
**River under minimum Old River flow conditions**

Month	Observed Old River temperature °F	Effluent temp. relative to Old River °F	Computed background temperature increment, °F	Temperature increment after 21:1 dilution of plume, °F
January	50.0	16.0	0.20	0.96
February	53.4	12.6	0.17	0.77
March	58.1	9.5	0.11	0.56
April	63.3	7.2	0.25	0.59
May	67.5	5.9	0.25	0.53
June	72.1	5.1	0.46	0.70
July	76.1	3.8	0.47	0.65
August	75.2	5.8	0.67	0.95
September	71.2	9.6	1.12	1.57
October	65.1	12.3	0.41	0.99
November	55.8	17.6	0.63	1.46
December	49.3	18.5	0.24	1.12

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#### Ammonia Toxicity

The acute and chronic ammonia toxicity threshold concentration was computed using the following equation of the "National Criterion for Ammonia in Fresh Water" for salmonids.

$$\begin{aligned} \text{Acute:} \quad \text{NH}_3\text{-N} &= 0.275/(1+10^{7.204-\text{pH}}) + 39.0/(1+10^{\text{pH}-7.204}) \\ \text{Chronic:} \quad \text{NH}_3\text{-N} &= 0.0858/(1+10^{7.688-\text{pH}}) + 3.7/(1+10^{\text{pH}-7.688}) \end{aligned}$$

The maximum effluent ammonia concentration for the anticipated level of treatment is 3.0 mg/L as nitrogen. The pH that corresponds to the acute toxicity threshold is 8.3. The treatment plant is expected to produce an effluent with a pH that is below 8.3, therefore, acute ammonia toxicity does not appear to be an issue within the mixing zone.

Chronic toxicity is determined using monthly average discharge and ambient conditions. Table 5 shows the maximum average pH at Mossdale, 95% of the maximum average Mossdale pH and the corresponding chronic ammonia threshold concentration for each month. (The 95% adjustment represents interior south Delta conditions as discussed above.) Ammonia data (Ammonia Table in Appendix F of the Tracy EIR document) from four interior south Delta stations indicate a maximum ammonia concentration of 0.22 mg/L. This concentration is well below the chronic ammonia toxicity threshold values listed in Table 5.

The upgraded treatment plant will be capable of producing effluent with a monthly average pH of 0.5 mg/L. Assuming discharge and background ambient ammonia concentrations of 0.5 and 0.22 mg/L respectively, a dilution of 1 part effluent to 0.33 river water is required to produce sub-chronic conditions. Such dilutions are achieved within two feet of the diffuser port and the area above the chronic toxicity threshold is less than 1% of the river cross section. Therefore, chronic ammonia toxicity appears to be a non-issue for the proposed discharge.

**Table 5**  
**Maximum monthly observed and scaled monthly average pH in the San Joaquin River at Mossdale and the chronic ammonia toxicity threshold corresponding to the scaled pH**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mossdale pH	7.96	8.18	8.35	8.18	8.44	9.12	9.12	8.96	8.85	8.45	8.00	8.46
Mossdale pH x 0.95	7.56	7.77	7.93	7.77	8.02	8.66	8.66	8.51	8.41	8.03	7.60	8.04
Chronic toxicity, mg/L @ scaled pH	2.15	1.72	1.40	1.72	1.24	0.43	0.43	0.56	0.66	1.22	2.08	1.20

#### FAR-FIELD ANALYSIS

##### Water Quality Model Specifications and Assumption

Model simulations were performed for the maximum forecasted City of Tracy dry weather flow plus wet weather increment for the five combinations of Delta operation assumptions, CALFED alternatives and hydrology described previously. The following water quality parameters were simulated.

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the periods of low dissolved oxygen that are associated with periods of low reaeration. A wind speed of 3 fps is the approximate 10-percentile speed at Stockton.

#### Impacts of Treated effluent

The analysis utilized simulation results for the hydrologic period from October 1922 through September 1995. Since monthly average hydrology is provided by DWRSIM, all results are presented as end-of-month values that reflect the average hydraulic and water quality condition.

The fate of the Tracy treated effluent was computed by assigning a conservative tracer to the discharge as described above. The incremental change in the treated effluent component expressed as percent resulting from an increase in the discharge rate from 9-mgd to 16-mgd is summarized as follows:

- Effluent component in the San Joaquin River east of Old River
- Effluent component at the CVP, SWP and CCWD export locations
- Seasonal effluent component at the CVP export location
- Seasonal effluent component in Old River at the existing Tracy Outfall

The computed incremental change in the percentage of effluent reaching the San Joaquin River is negligible for all cases except for those featuring the permanent barriers. The permanent barriers, as represented in the model, have the potential due to their hydraulic capacity of increasing the water surface elevation in the southern Delta such that the net flow in Old River at the Tracy outfall location is in the easterly direction. The incremental change in the percentage effluent is still quite low and is less than 0.2% for 99% of the time.

The incremental change in the component of effluent at the export locations and in Old River at the Tracy discharge location is shown graphically. The incremental change expressed as percent effluent is plotted versus the percent of the time (abscissa) that the wastewater percentage is exceeded during the 73-year simulation period. Three plots are presented for each of the five operation conditions.

The first plot of each group shows the incremental change in the treated effluent percentage at the three major export locations. In all cases, the highest percentages are for the CVP. The second plot of each group shows the incremental change in the percentage effluent at the CVP export location on a seasonal basis (the four month groupings defined previously). The third plot shows the seasonal variation in Old River at the outfall location.

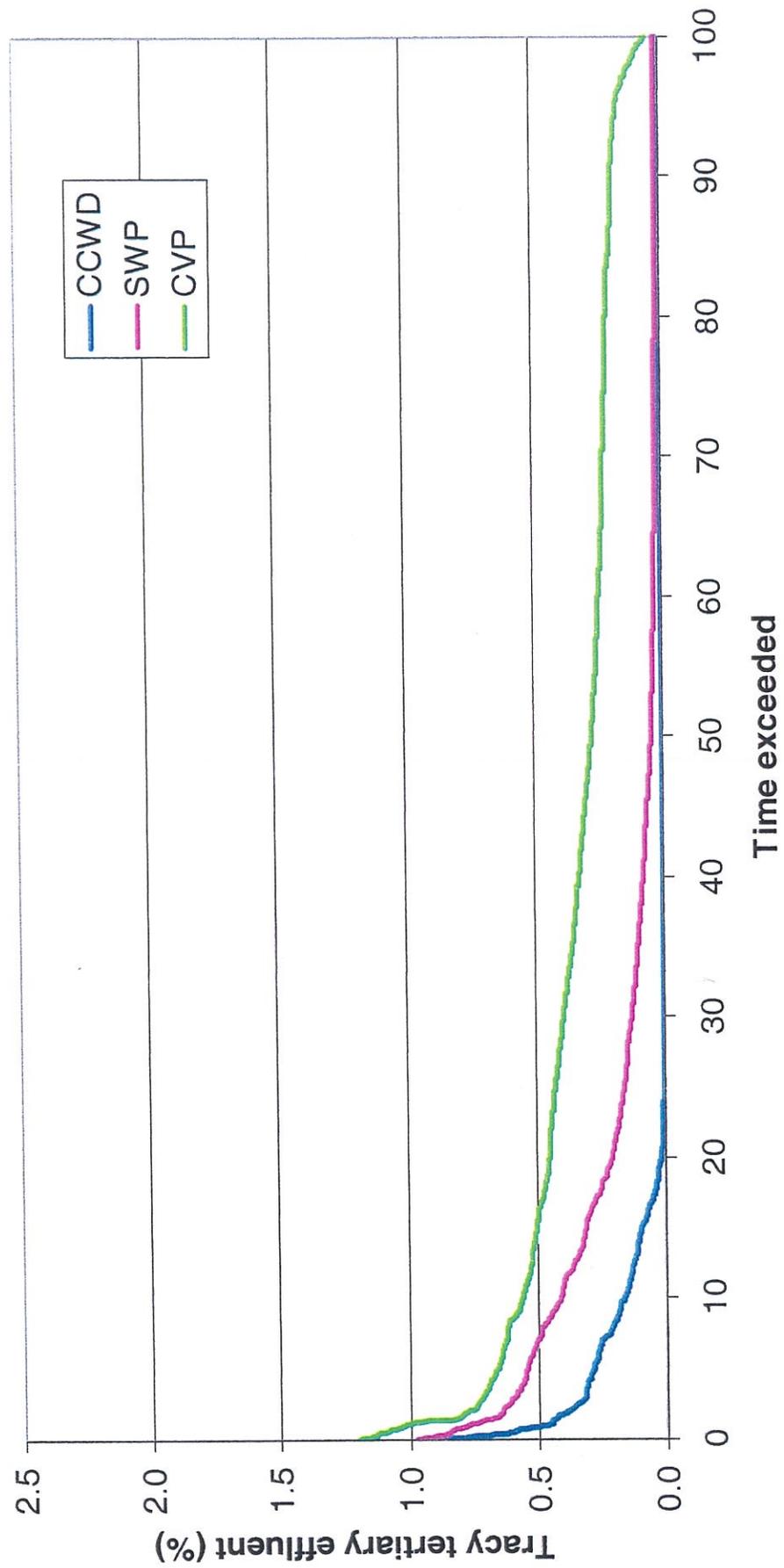
#### *Figures 10 - 12: No-action with present Delta configuration without barriers*

Without barriers, there is ample circulation to limit the buildup of effluent within the southern Delta.

#### *Figures 13 - 15: No-action with present Delta configuration and temporary Old River fish barrier*

As expected, the addition of the Old River fish barrier raises the effluent percentages during the April – May and October – November periods by restricting circulation flow in Old River. The 10% exceedance values at the outfall site are more than doubled with the addition of the barrier. However, only small increases are computed at the export locations.

Figure 10 Incremental change in the percent Tracy tertiary effluent at the major export points (no-Action alternative without barriers)



**Figure11 Incremental change in percent Tracy tertiary effluent by time period at the CVP intake (no-action alternative without barriers)**

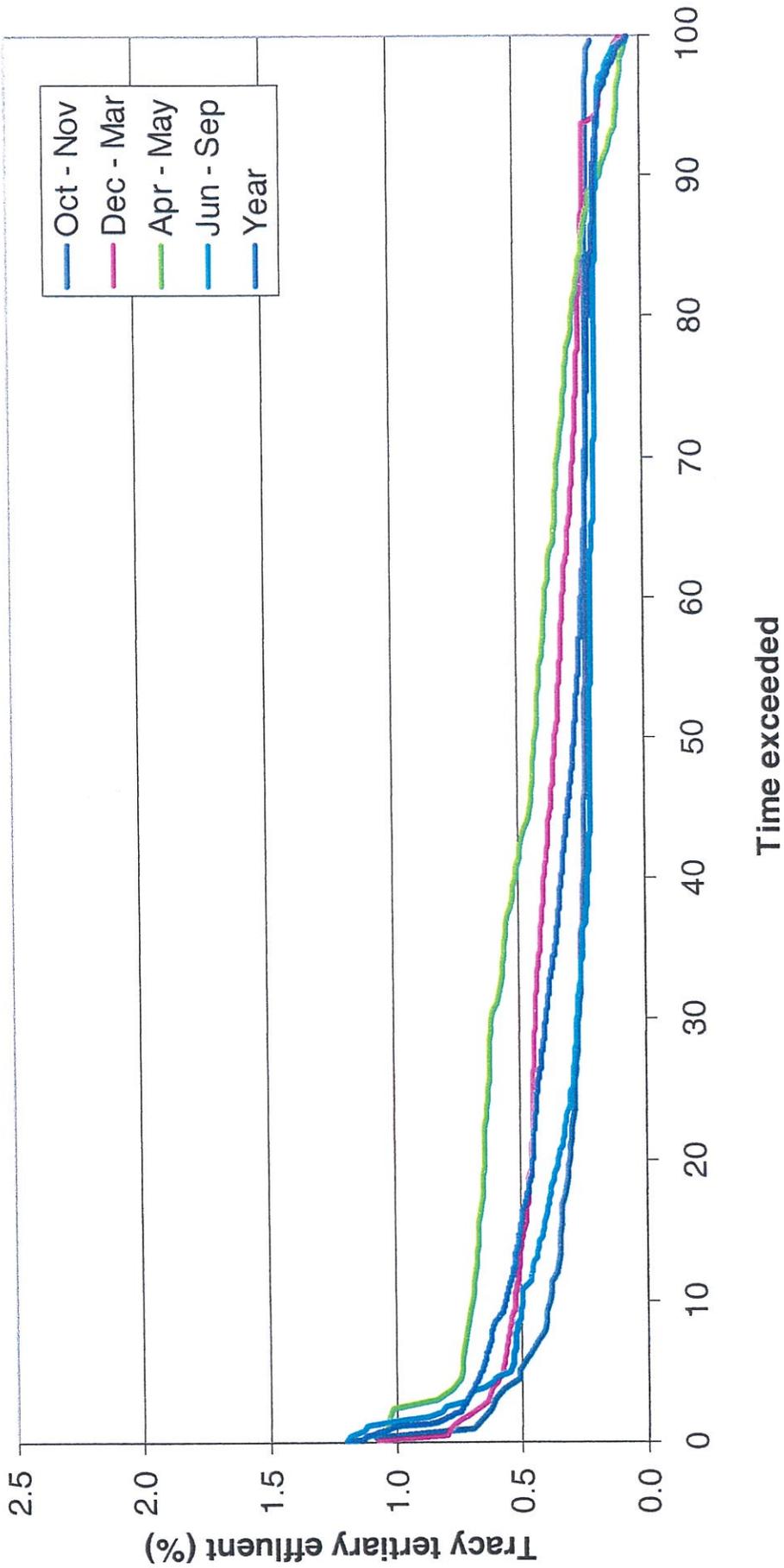


Figure12 Incremental change in percent Tracy tertiary effluent by time period at the proposed Old River outfall site (no-action alternative without barriers)

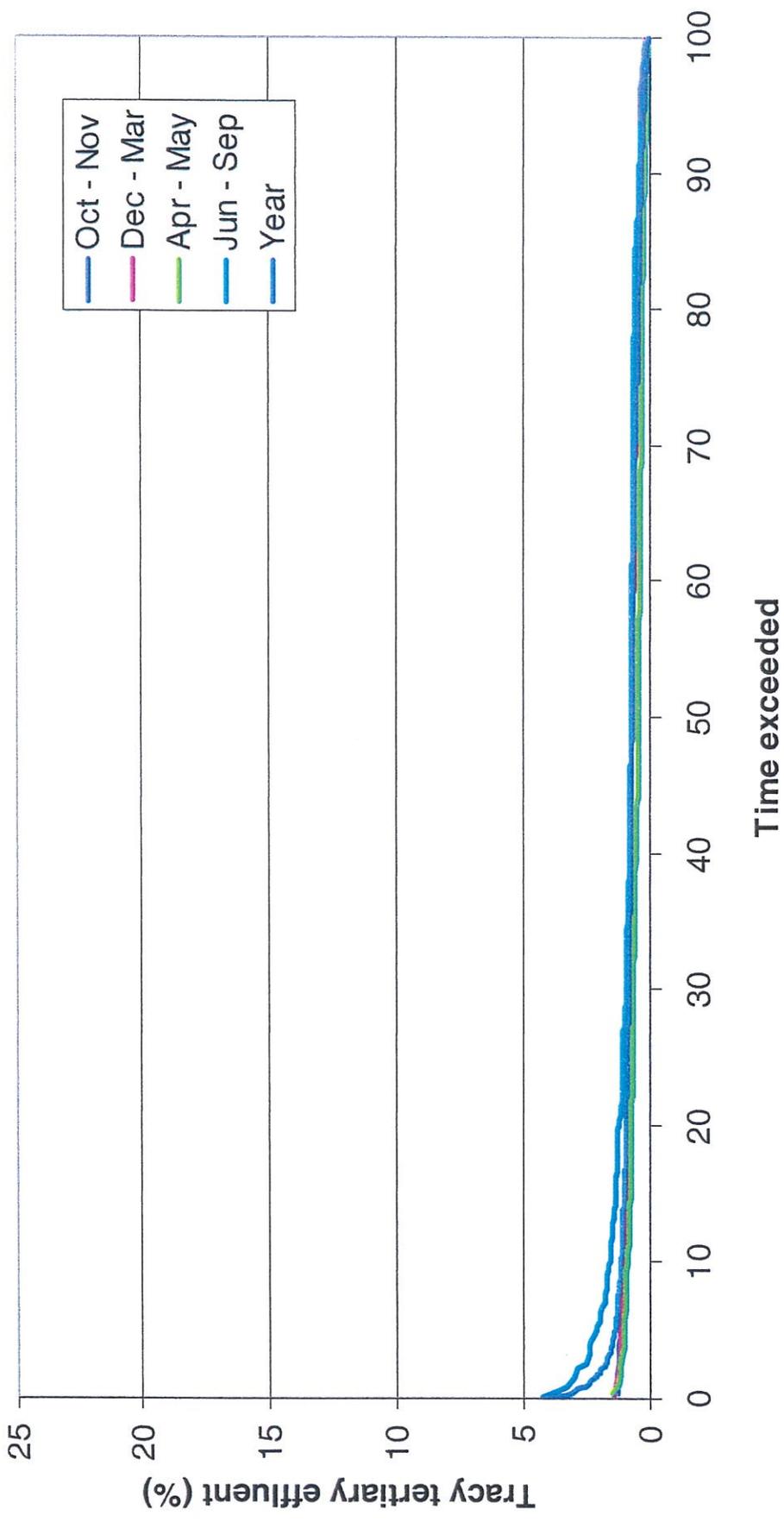
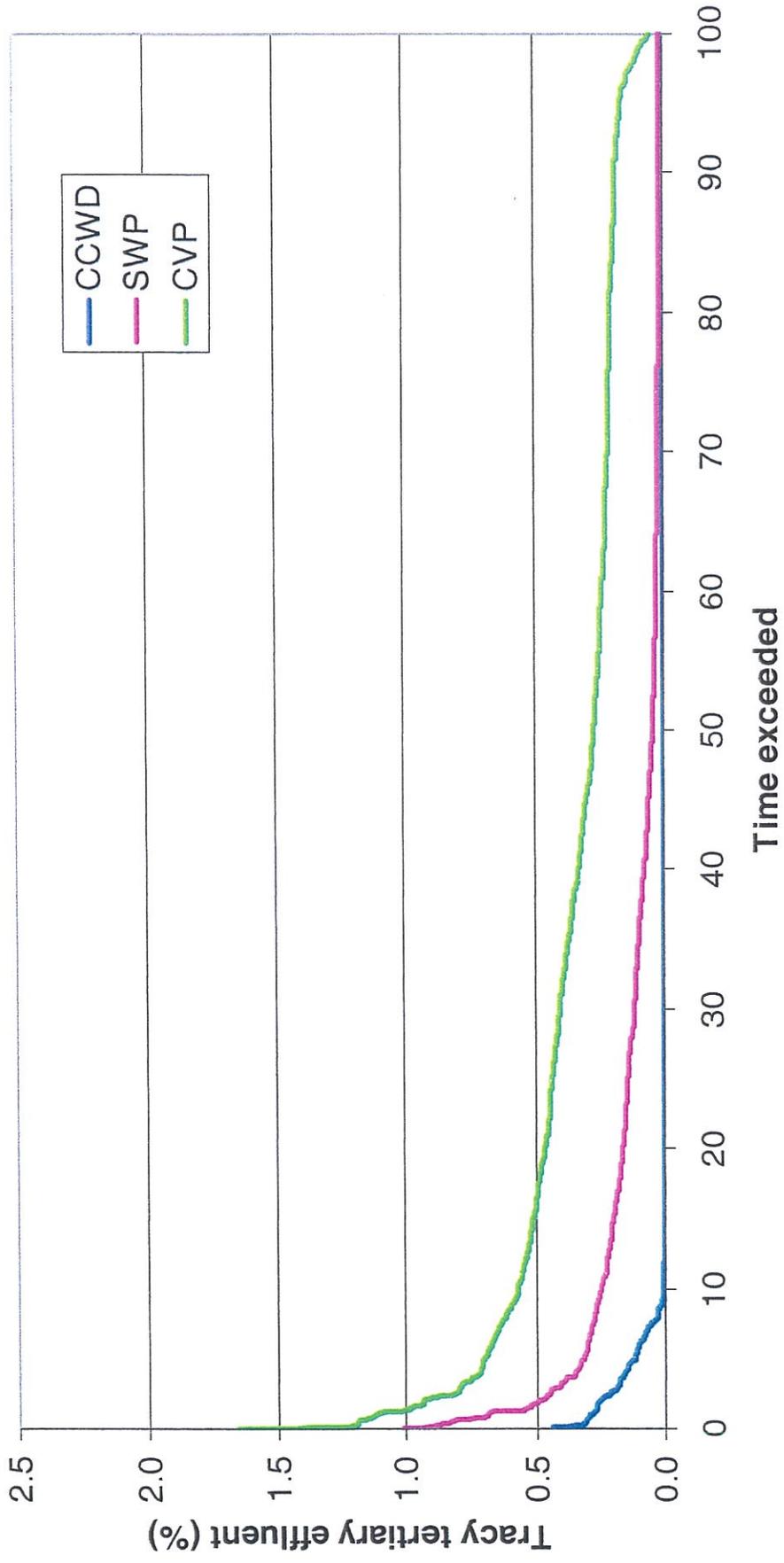


Figure 13 Incremental change in the percent Tracy tertiary effluent at the major export points (no-action alternative with Old River fish barrier only)



**Figure 14 Incremental change in percent Tracy tertiary effluent by time period at the CVP intake (no-action alternative with Old River fish barrier only)**

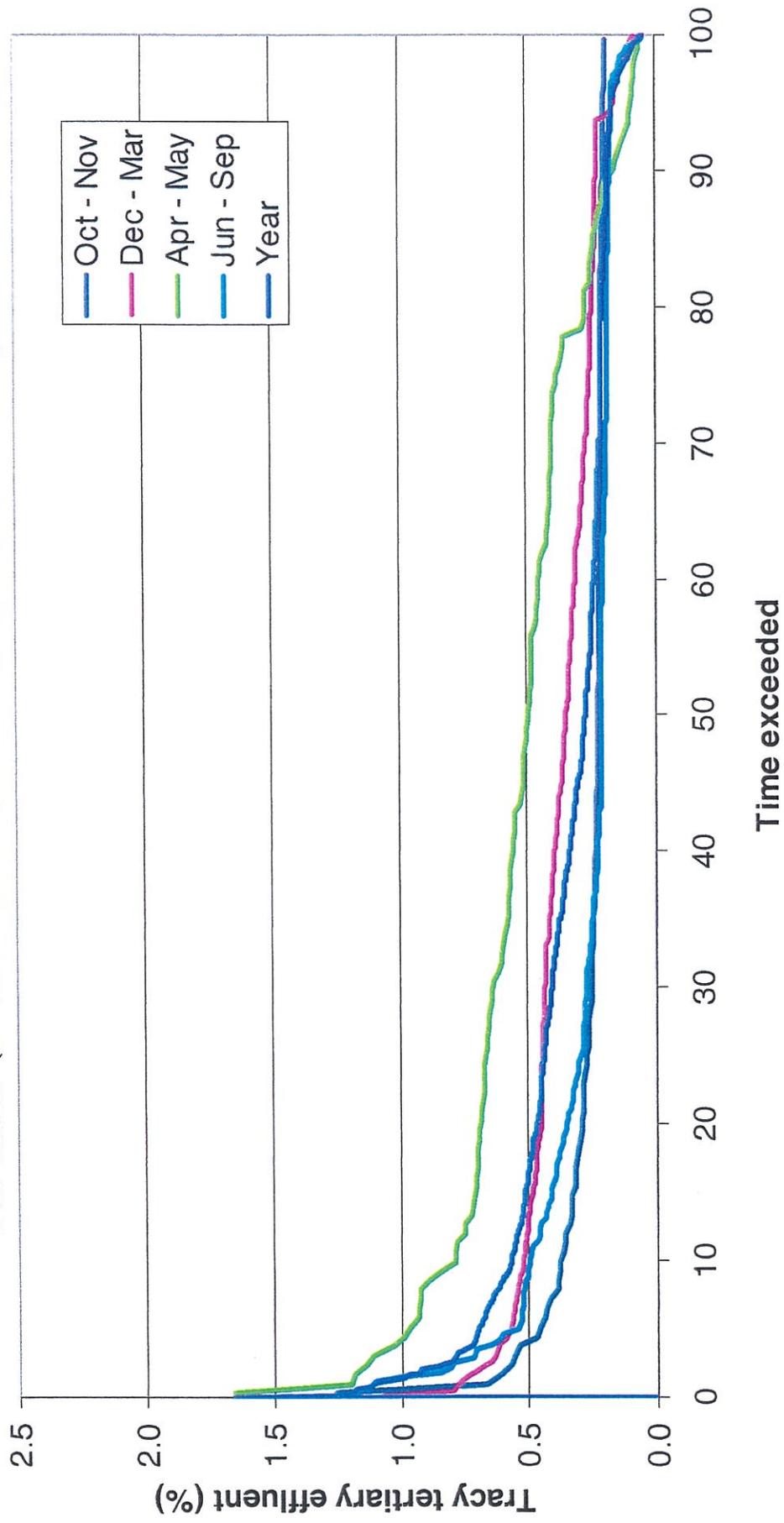
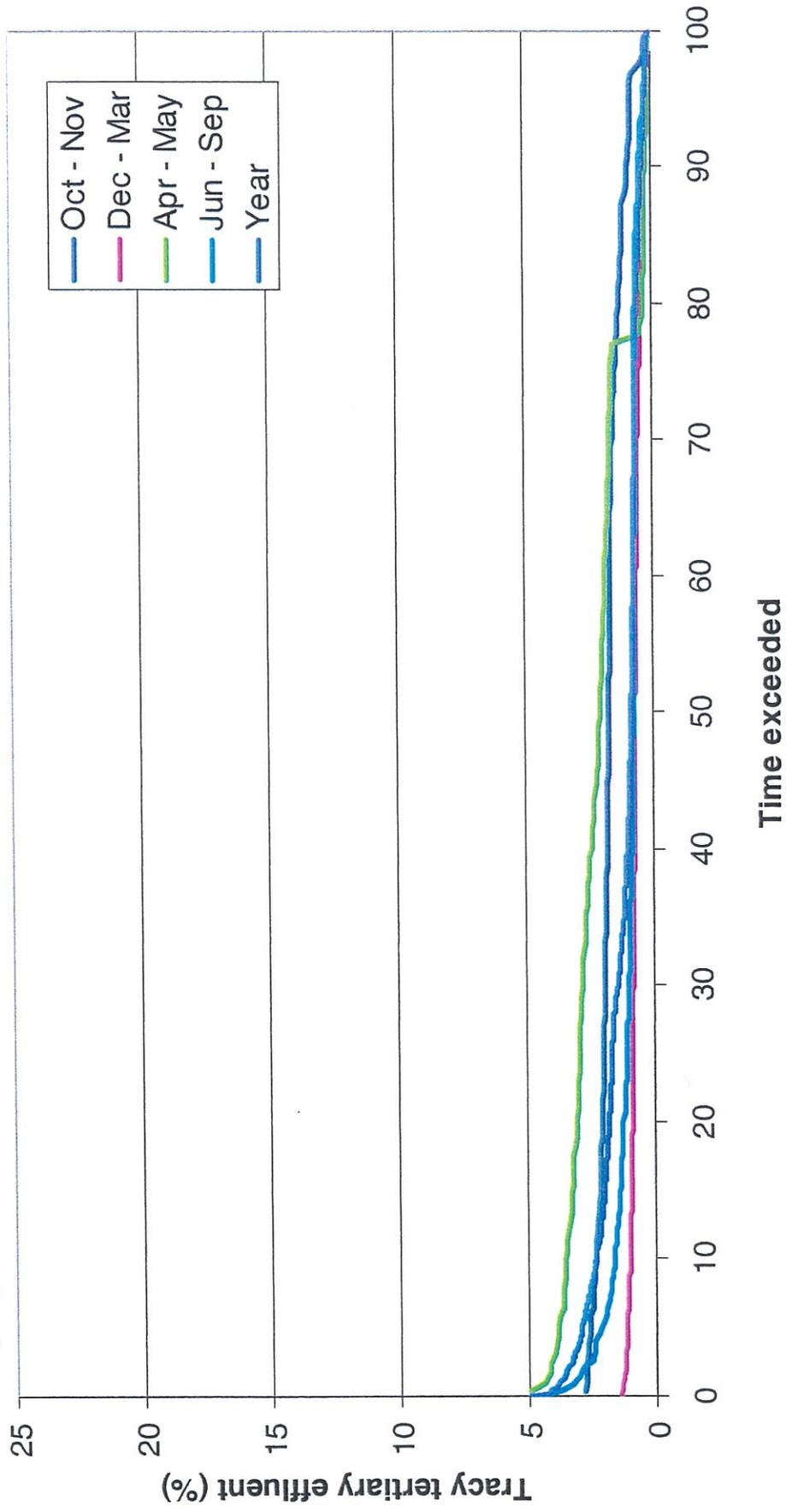


Figure 15 Incremental change in percent Tracy tertiary effluent by time period at the proposed Old River outfall site (no-action alternative with Old River fish barrier only)



*Figures 16 - 18: No-action with present Delta configuration and temporary South Delta barriers*

The impact of the temporary south Delta facilities is clearly seen in the seasonal plots. The June – September percentages for Old River (Figure 18) are increased by a factor up to 3 over the no-barrier cases. The impact at the exports is much less since the south Delta facilities isolate the southeastern Delta from the export locations by restricting westerly flows.

*Figures 19 - 21: No-action with enhanced Delta configuration and proposed permanent barrier*

The permanent south Delta facilities cases assume the Byron Tract intake to Clifton Court. The effect of this relocation reduces the effluent component entering Clifton Court and further increase the effluent component to the CVP. The Old River effluent summer period percentages also increase relative to the temporary barrier assumption. The absence of the overflow weirs of the temporary barriers result in less westerly flow (at high water) at the Old River DMC and Middle River barrier sites. The absence of these westerly flows further isolates the southeastern Delta from the rest of the Delta and further reduces circulation.

*Figures 22 - 25: Preferred alternative with enhanced Delta configuration and proposed permanent barrier*

The change in DWRSIM operations model assumption has little impact on the effluent percentages at the exports and in Old River. These results demonstrate that the Delta channel configuration and barrier operation are much more important than the differences in the hydrology of the two DWRSIM operation assumptions.

To further quantify the incremental change in the percent treated effluent presented in Figures 10 through 25, Table 6 is provided. This table lists the 1% and 5% exceedance and the maximum computed incremental change in the percentage of treated effluent from the City of Tracy at the three export locations and in Old River in the vicinity of the outfall. The percentages represent the computed increment associated with an increase in rated plant capacity from 9 mgd to 16 mgd. The percentages of Table 6 are for all months without regard to time of year.

The computed treated effluent percentage reaching the Contra Costa Water intake (CCWD) was always less than 1%. The CCWD intake is located north of the other and further from the influence of the City of Tracy discharge.

The computed treated effluent percentage reaching the Clifton Court intake (SWP) exceeded 1% only once for the CALFED no-action with temporary barriers scenario.

The CVP receives a larger component of the San Joaquin River flow since it captures a disproportionate fraction of the water flowing west in Old River and the Grantline Canal. The maximum computed treated effluent percentage at the CVP exceeds 1% for all five scenarios and exceeds 1% more than 5% of the time when permanent barriers are assumed.

The computed treated effluent percentage in Old River in the vicinity of the outfall is related to the net flow past the outfalls. Both the temporary and permanent south Delta facilities create low flow conditions that concentrate the treated effluent in the vicinity of the outfall.

The impact on any conservative parameter associated with the Tracy treated effluent discharge can be estimated from the concentration of the conservative tracer that is assigned to the discharge. The follow mass balance equation is utilized to make the conversion from percent treated effluent percentage increment to the increment in concentration of a conservative water quality parameter.

Figure 16 Incremental change in the percent Tracy tertiary effluent at the major export points (no-action alternative with temporary barriers)

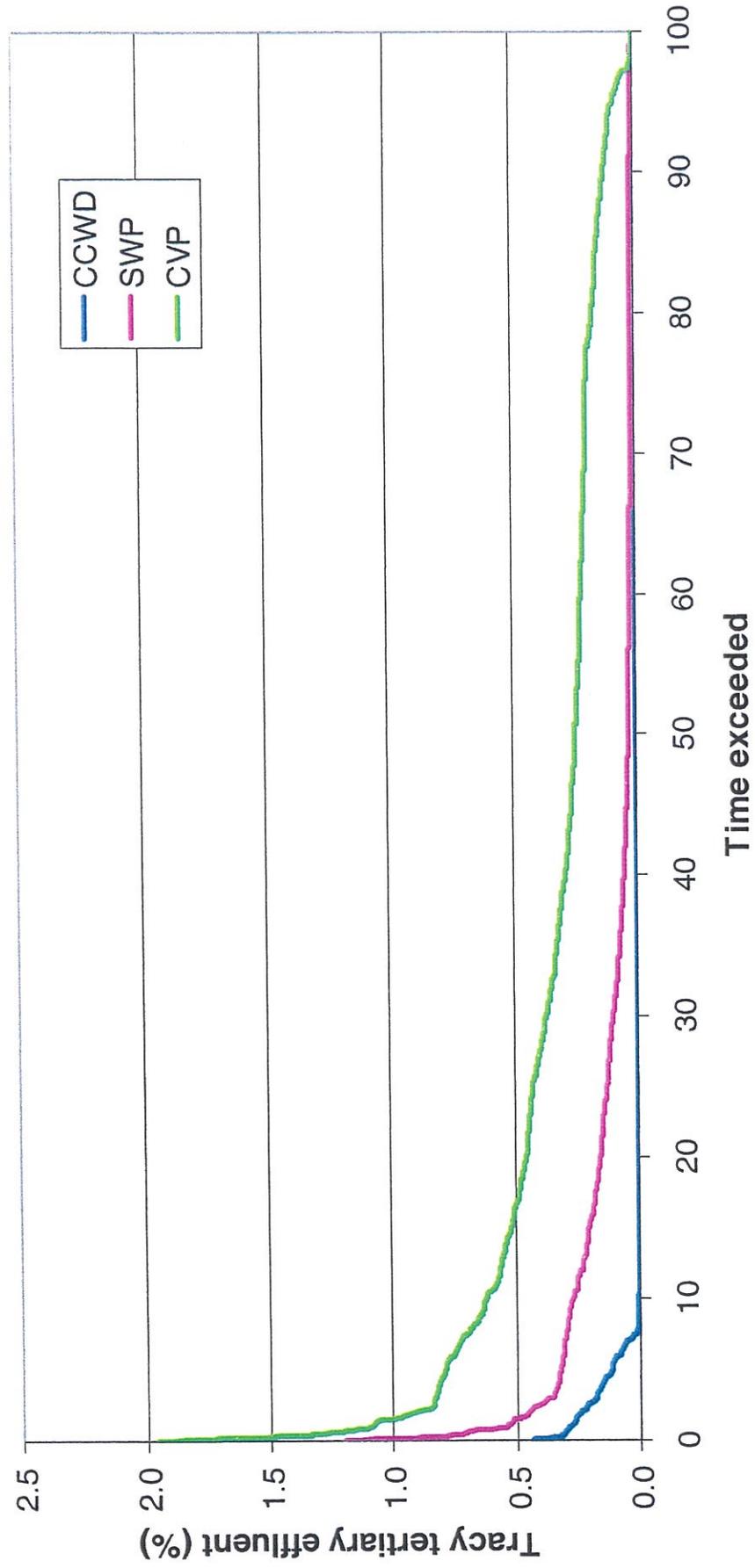


Figure 17 Incremental change in percent Tracy tertiary effluent by time period at the CVP intake (no-action alternative with temporary barriers)

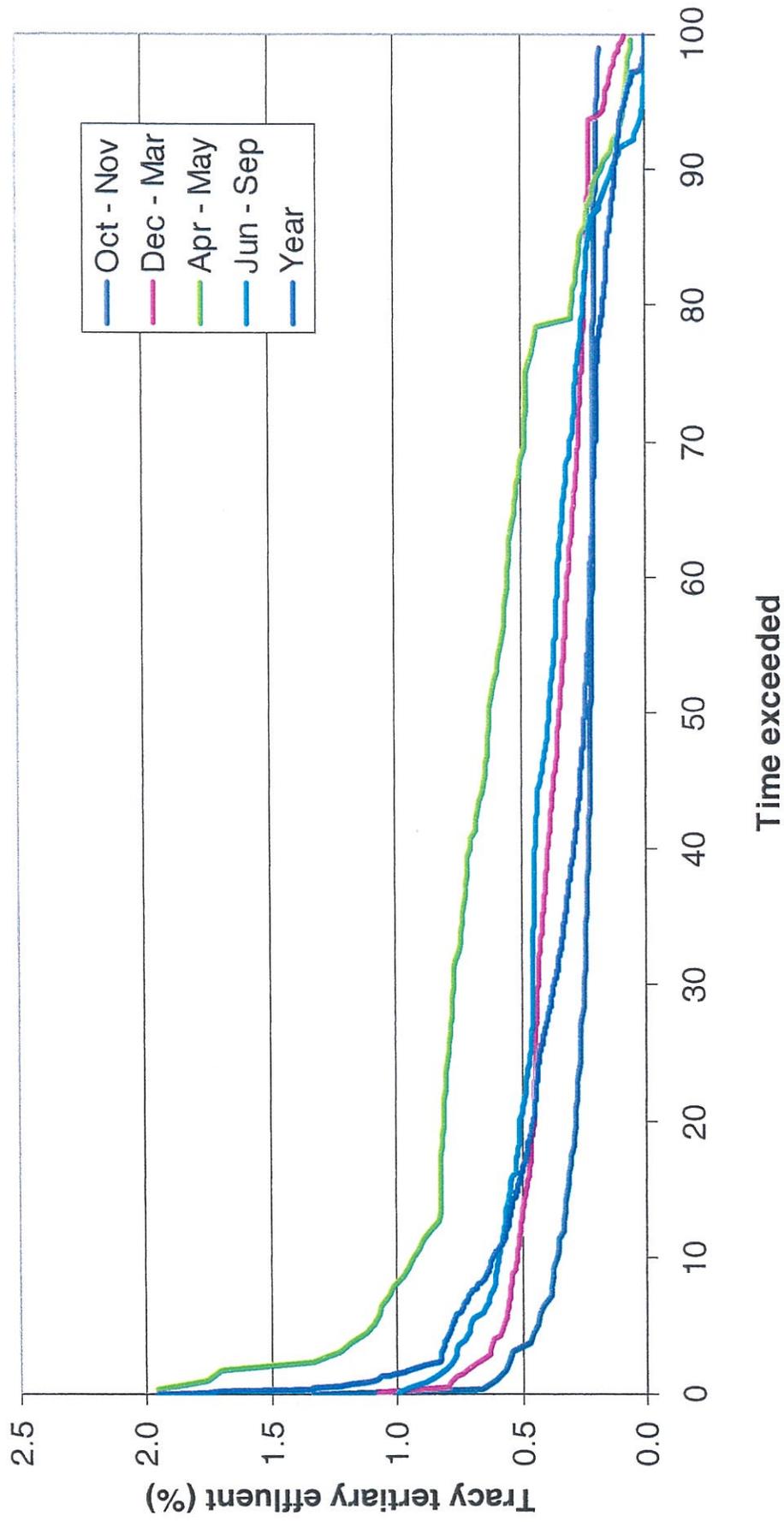


Figure 18 Incremental change in percent Tracy tertiary effluent by time period at the proposed Old River outfall site (no-action alternative with temporary barriers)

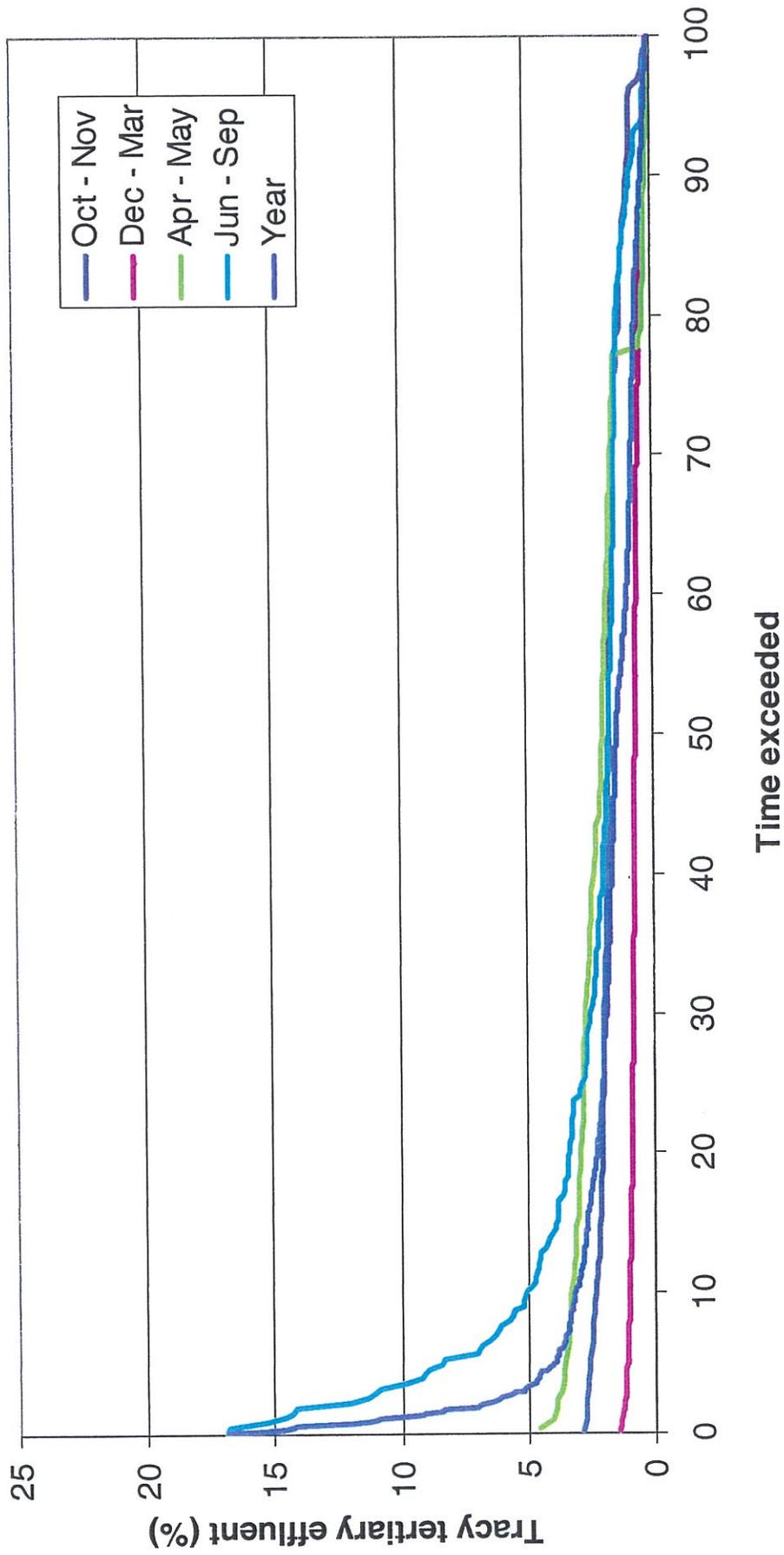


Figure 19 Incremental change in the percent Tracy tertiary effluent at the major export points (no-action alternative with permanent barriers)

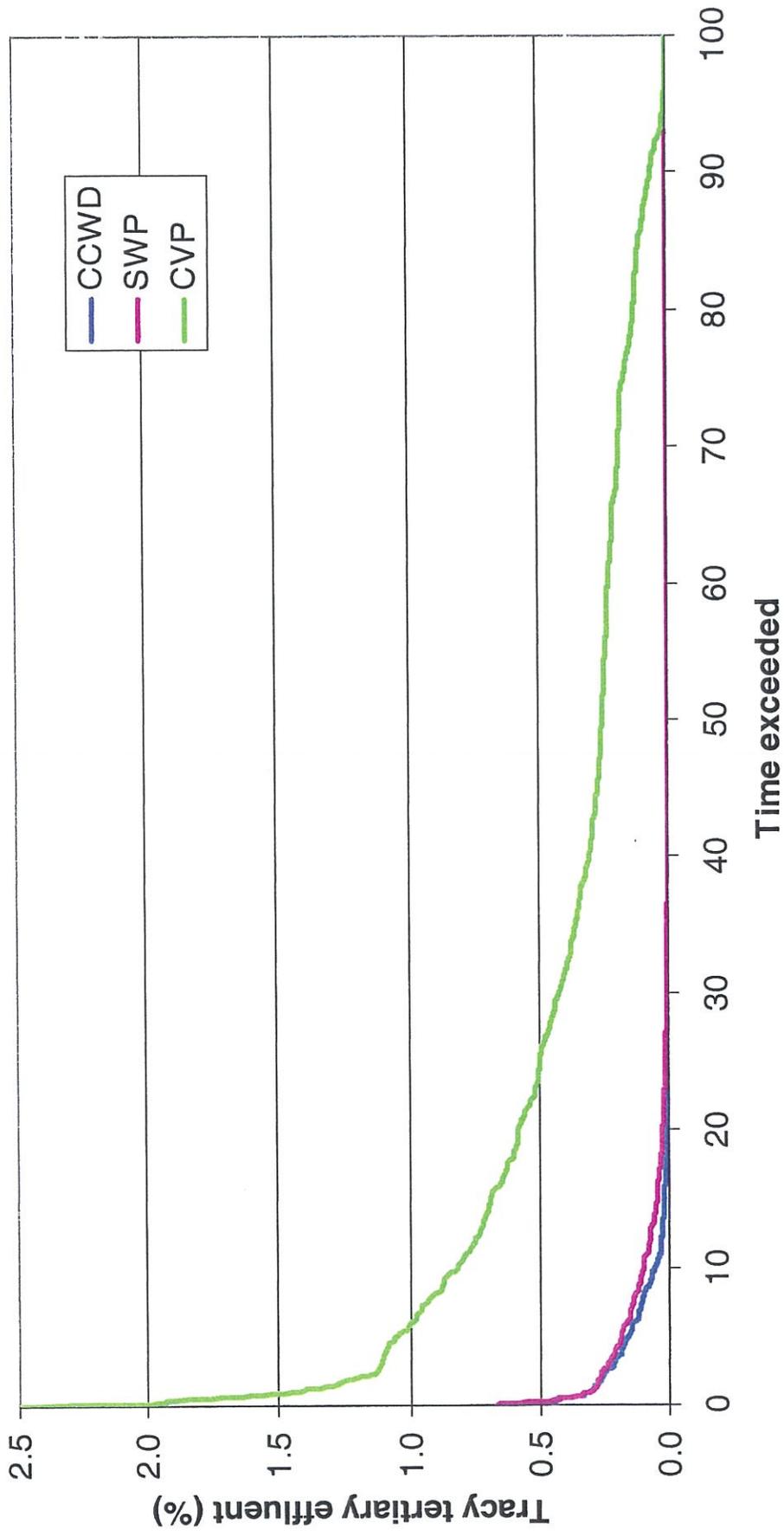


Figure 20 Incremental change in percent Tracy tertiary effluent by time period at the CVP intake (no-action alternative with permanent barriers)

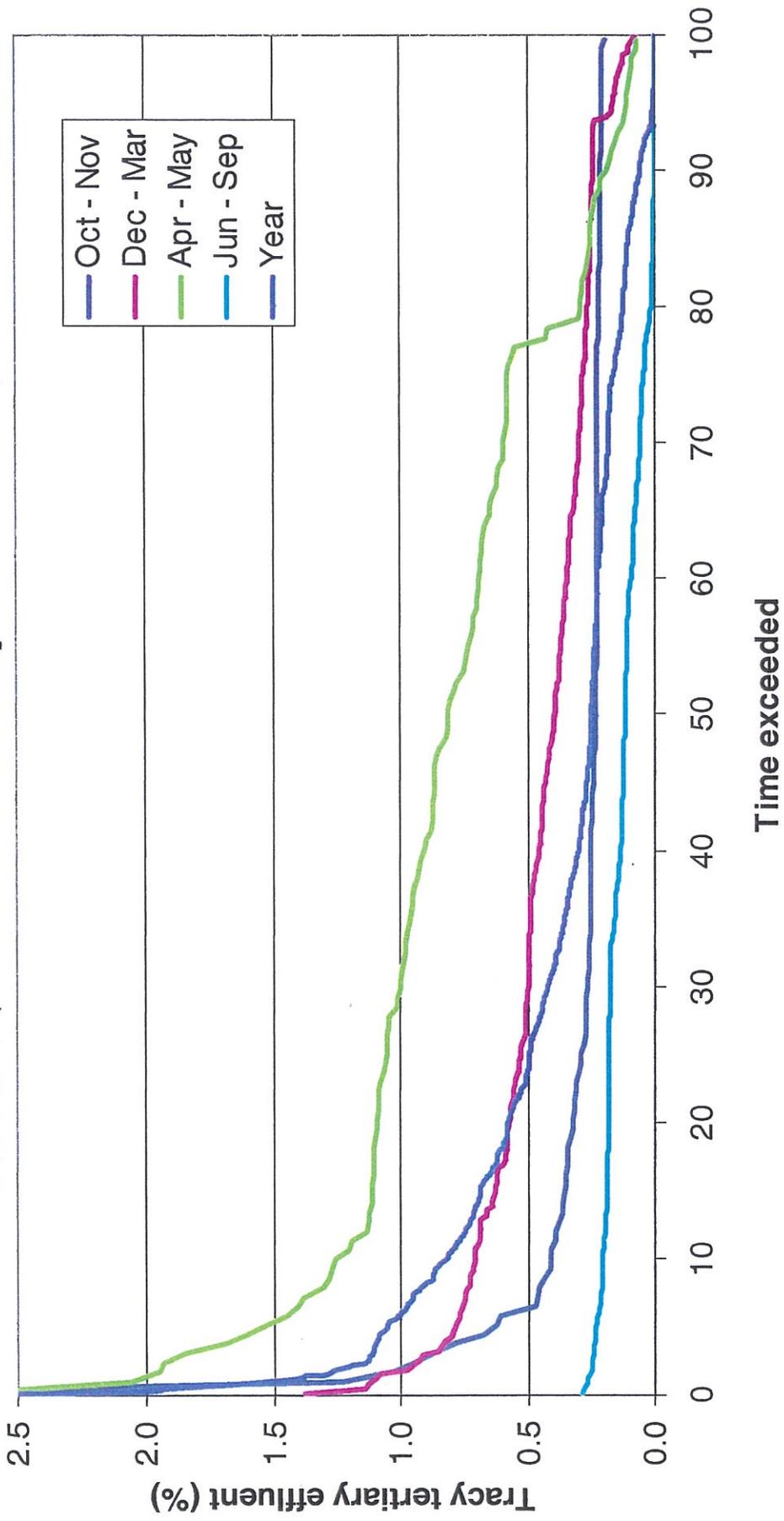


Figure 21 Incremental change in percent Tracy tertiary effluent by time period at the proposed Old River outfall site (no-action alternative with permanent barriers)

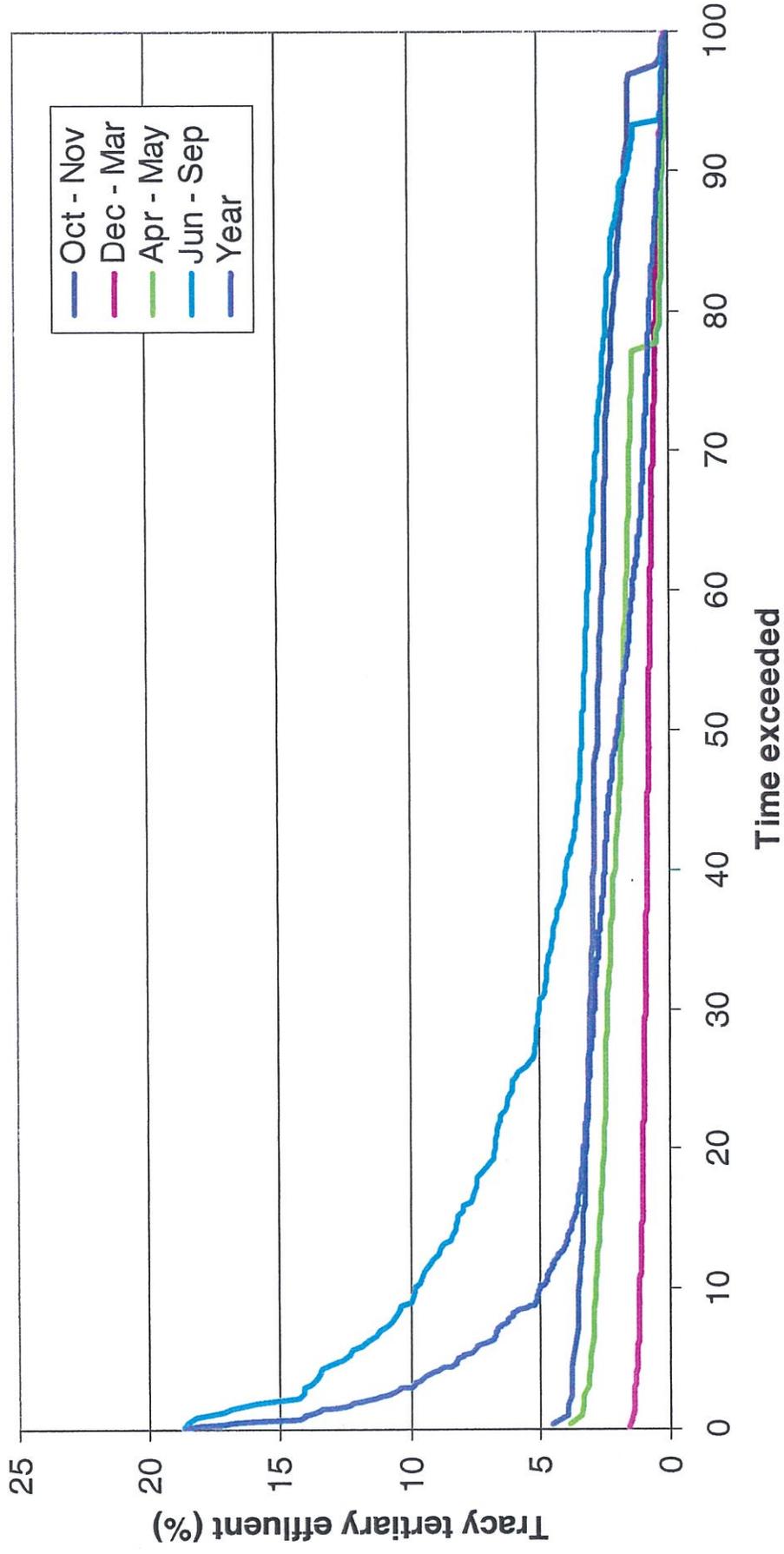


Figure 22 Incremental change in the percent Tracy tertiary effluent at the major export points (preferred alternative with permanent barriers)

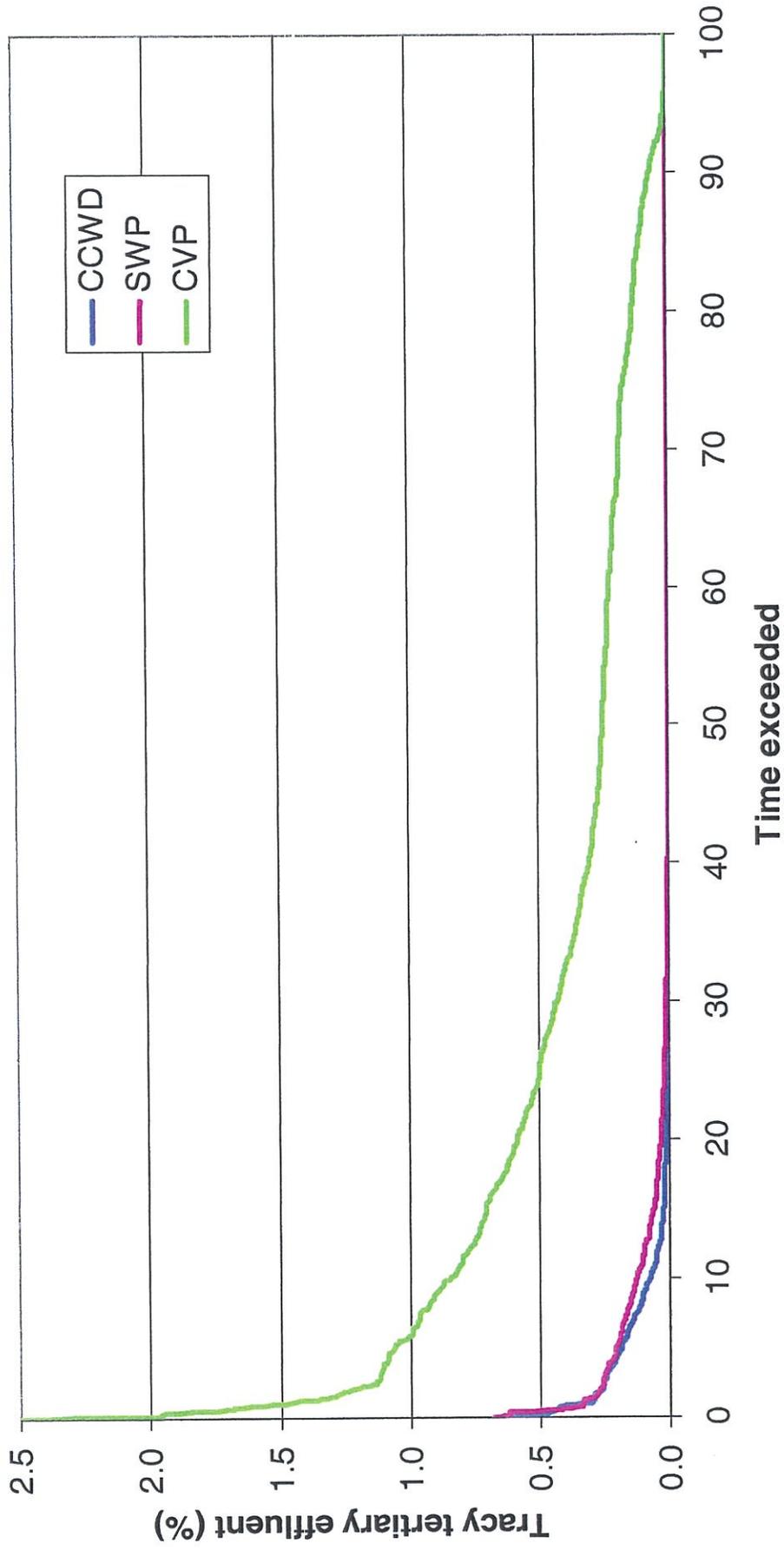


Figure 23 Incremental change in percent Tracy tertiary effluent by time period at the CVP intake (preferred alternative with permanent barriers)

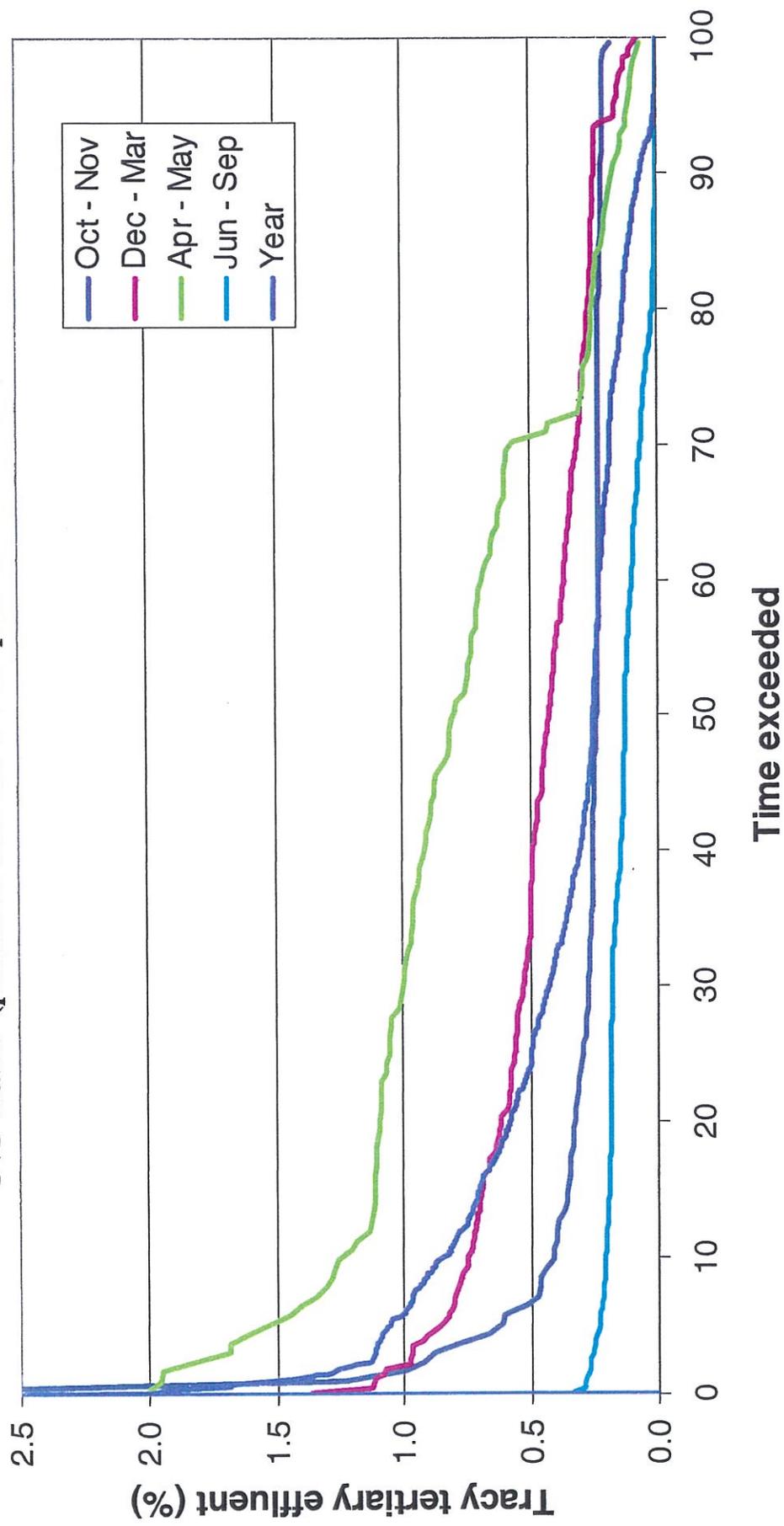


Figure 24 Incremental change in percent Tracy tertiary effluent by time period at the proposed Old River outfall site (preferred alternative with permanent barriers)

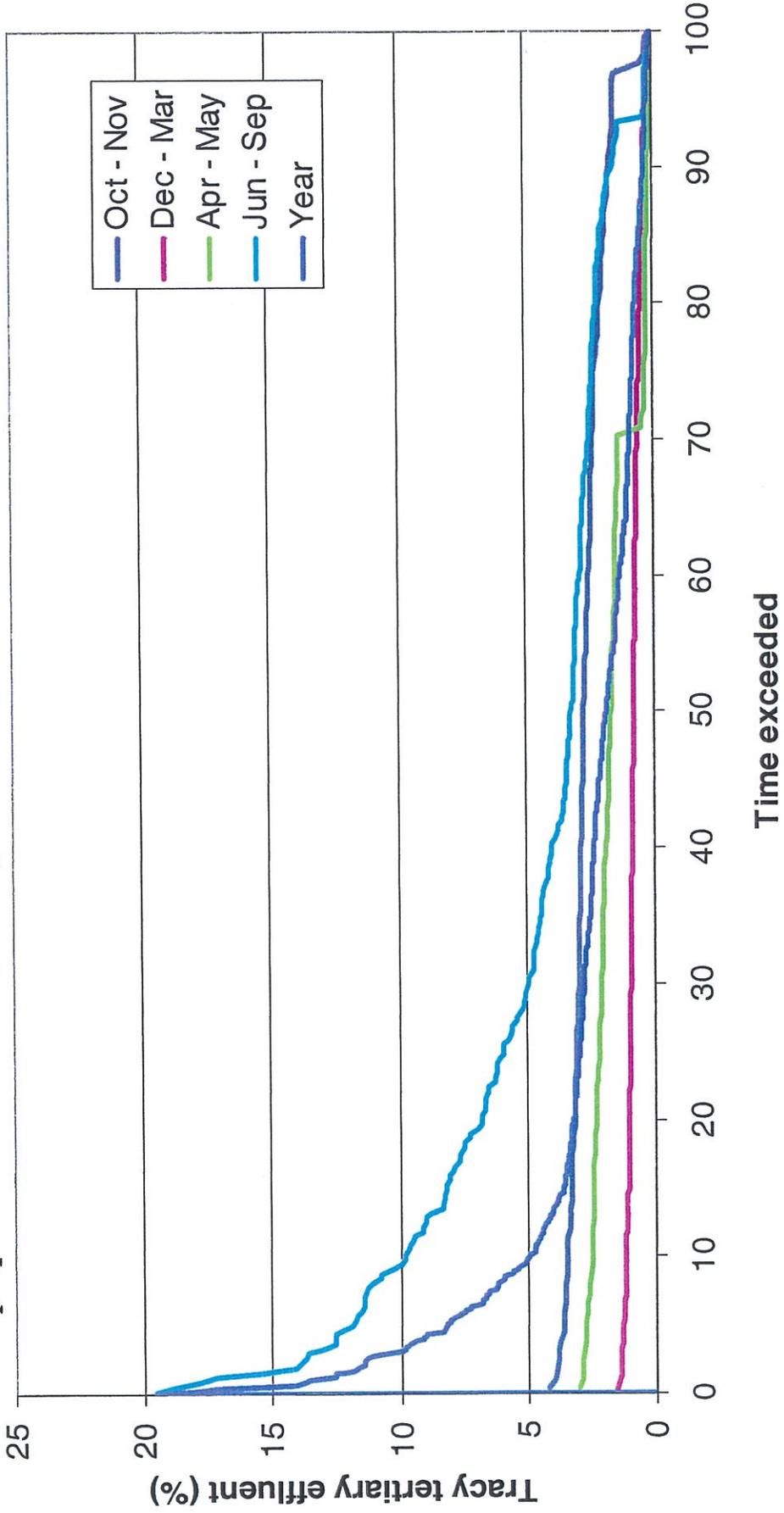


Figure 25 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd (no-action scenario without barriers)

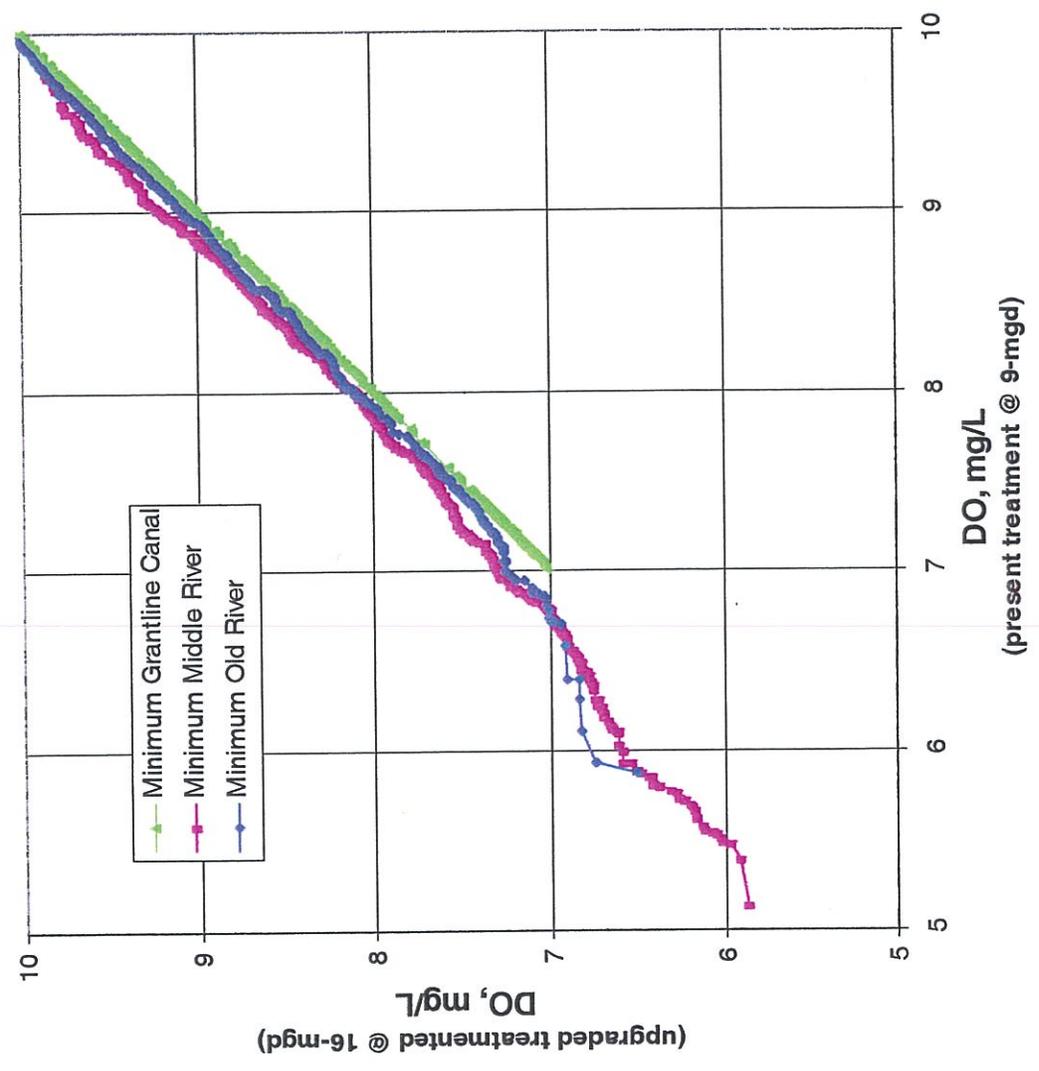
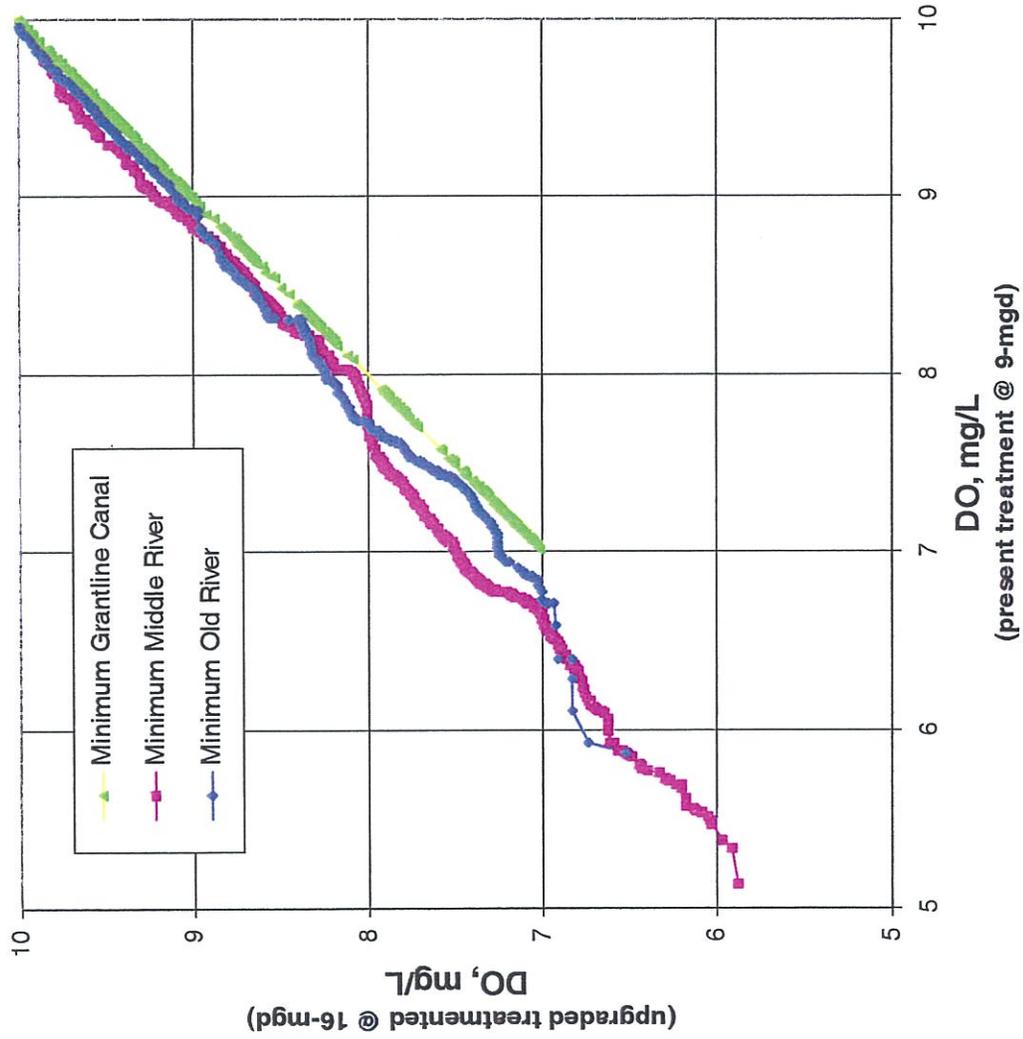


Figure 26 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd (no-action scenario with Old River fish barrier only)



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$$C_w = C_a + Q_m \cdot (C_m - C_r)$$

Where:  $C_w$  = new concentration of the location  
 $C_a$  = ambient concentration at the location  
 $Q_m$  = fraction of treated effluent at the location  
 $C_m$  = concentration in the treated effluent  
 $C_r$  = concentration in Old River at the Tracy discharge site

Table 6

#### Computed Incremental Change in the Percentage of Treated Effluent from the City of Tracy at Various Delta Locations

The impacts on water quality parameters that are non-conservative may be estimated by including a qualitative assessment of the impacts of the decay rates that influence its concentration.

#### Potential impacts of treated effluent on dissolved oxygen within south Delta channels

Each Delta operation alternative was simulated assuming present and future BOD and ammonia loadings associated with the existing and proposed treatment plant processes. The results of this analysis are presented as scatter plots (Figures 25 through 29) of the minimum computed dissolved oxygen concentration within the three Delta channels. The computed dissolved oxygen under present treatment conditions and permitted discharge rate of 9-mgd is referenced to the X-axis and the corresponding computed concentration assuming future treatment conditions and 16-mgd discharge rate is referenced to the Y-axis. Keep in mind that the purpose of this analysis is to evaluate the potential for improvement in dissolved oxygen levels associated with plant expansion. Assumptions such as prolonged low wind speeds and the resulting low reaeration rates likely overstate the potential for low concentrations seen in the computed results.

Results for the no-action scenario with the present Delta configuration without all barriers and with the temporary Old River fish barrier are the only cases seen in Figures 25 and 26. The lowest computed dissolved oxygen levels occur in Middle River as flows migrate towards the San Joaquin River under summertime low river flows and export rates. The computed dissolved oxygen at the 5 mg/L threshold improves by approximately 0.8 mg/L with treatment plant upgrade despite the increase in discharge rate from 9-mgd to 16-mgd.

Results for the no-action scenario with present Delta configuration and temporary South Delta barriers are seen in Figure 27. The lowest computed dissolved oxygen concentrations in Old and Middle Rivers occur during the summer months when the temporary barriers are in place. With the treatment plant upgrade, computed dissolved oxygen at the 5 mg/L threshold improves by approximately 1.2 mg/L.

Results for the no-action and preferred alternative with enhanced Delta configuration and proposed permanent barrier are shown in Figures 28 and 29. Again, there is an increase in the minimum computed dissolved oxygen levels by more than 1.0 mg/L at the 5 mg/L threshold. The overall minimum concentrations are lowered slightly relative to the temporary barrier case since depths are greater (particularly in Middle River where dredging to -4' NGVD was assumed) while low velocities associated with the barriers are prevalent during the warm weather months.



Figure 28 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd (no-action alternative with permanent barrier)

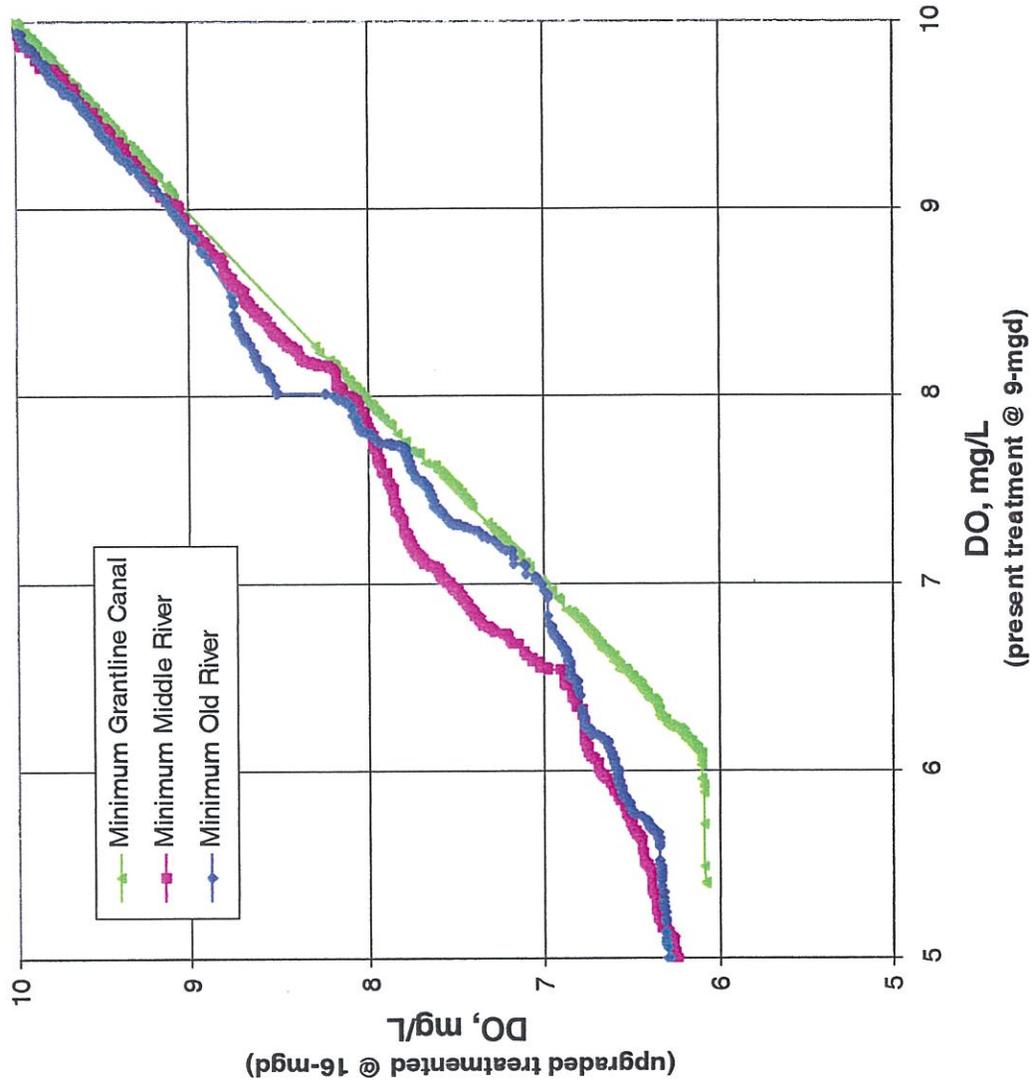


Figure 29 Comparison of the minimum computed dissolved oxygen is the south Delta with Tracy tertiary effluent at 16-mgd versus present Tracy effluent quality at 9-mgd (preferred alternative with permanent barrier)

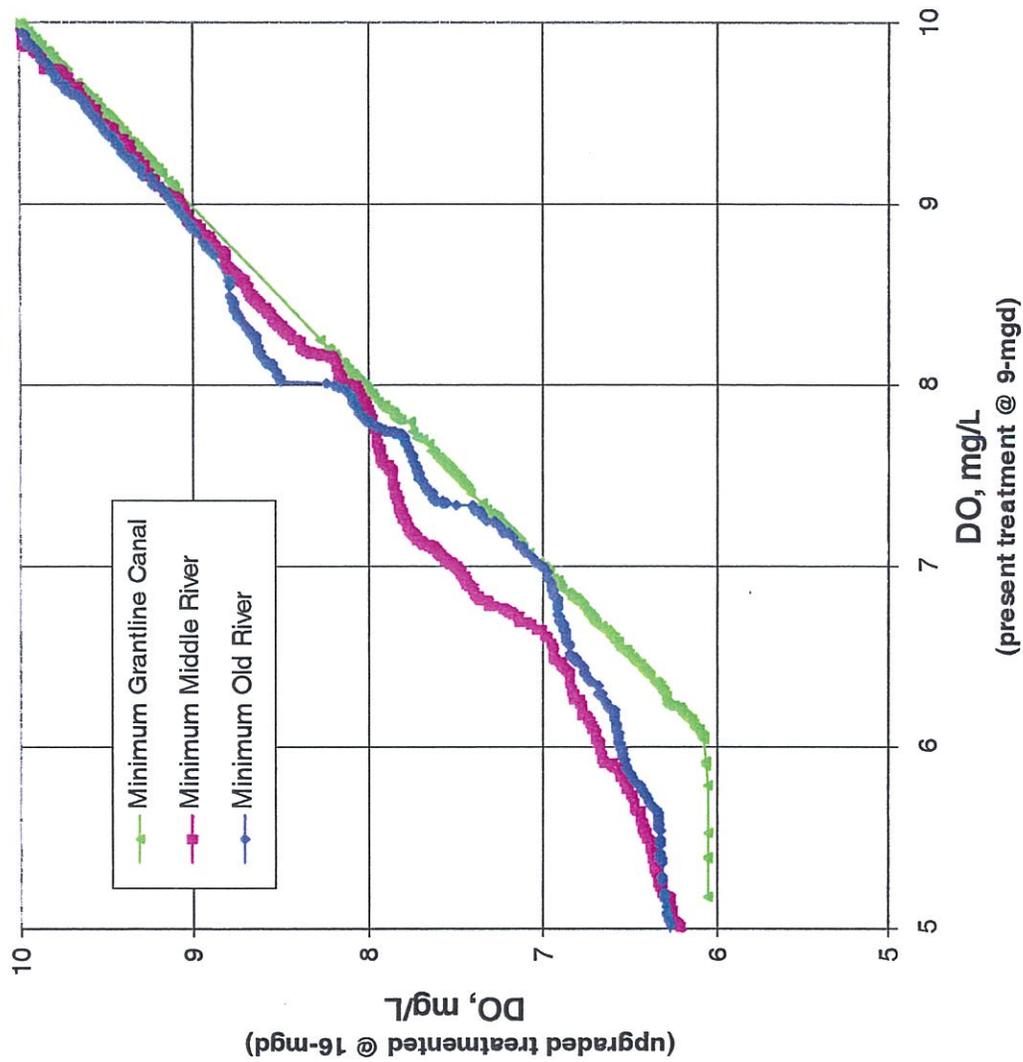


Table 6  
 Computed Incremental Change in the Percentage of Treated Effluent from the City of Tracy at Various  
 Delta Locations

Location	No-action alternative without barriers			No-action alternative with Old River fish barrier only			No-action alternative with temporary barriers			No-action alternative with permanent barriers			Preferred alternative with permanent barrier		
	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %	Exceeded 5%	Exceeded 1%	Maximum %
CCWD	0.28	0.44	0.88	0.12	0.28	0.44	0.11	0.28	0.43	0.16	0.30	0.60	0.19	0.30	0.62
SWP	0.54	0.76	0.97	0.32	0.68	1.00	0.32	0.53	1.19	0.19	0.30	0.70	0.20	0.33	0.68
CVP	0.65	1.01	1.19	0.70	1.11	1.66	0.78	1.07	1.96	1.06	1.45	2.78	1.06	1.45	2.88
Old River	1.40	2.42	4.24	2.94	3.71	4.96	3.90	10.87	16.87	8.22	13.82	18.68	8.19	13.09	19.54

REFERENCES

CALFED, June 1999, Draft Programmatic EIR/EIS; Attachment A: "Information about the No Action Alternative; Modeling Assumptions for Existing Conditions, the No Action Alternative and the Program Alternatives; and the Actions that May Contribute to Cumulative Impacts"

CH2M Hill, January 2001, Technical Memorandum: "Tracy Outfall, Preliminary Diffuser Sizing"

ENTRIX, July 1996, "Draft Environmental Impact Report / Environmental Impact Statement (EIR/EIS); Interim South Delta Program (ISDP); Volume II" Prepared for the DWR and USBR

Nelson, DWR, May 2000, E-mail message from Tim Nelson of DWR regarding "Permanent and Temporary Barriers Operations, Schedule of Past Installations and Other Pertinent Information"

Smith, D. J and T. J. Durbin, July 1989, "Mathematical Model Evaluation of the Proposed Delta Wetlands Project on the Hydrodynamic and Water Quality Responses if Suisun Bay and the Sacramento-San Joaquin River Delta System"

closure of all barriers except Grantline Canal). The barrier configuration assumed within the model reflected these conditions.

Figure A.1 shows the boundary tide for the entire period. The variations seen in this figure help explain some of the relative differences seen on the plots for the two time periods of the remaining figures.

Figures A.2 and A.3 show that there is little impact of the barriers on the Grantline Canal stage. Figures A.4 and A.5, however dramatically demonstrate the impacts of the Old River @ the DMC barrier on stage east and adjacent to the barrier. These four figures show that the model adequately represents the magnitude and phasing of tidal stage at these locations with and without temporary barriers.

Figures A.6 and A.7 show that the model under predicts the amplitude of the flow in Victoria Canal by up to 15%. Victoria Canal and the Old River north of Clifton Court are the dominant sources of water for the export pumps. Any underproduction of flow in Victoria Canal would be compensated by flows in the Old River (alternative flow path). The spikes seen in the computed velocity result from the abrupt operation of the Clifton Court gates. Figures A.8 and A.9 show the computed and observed flow in Grantline Canal at Tracy Bridge. These results demonstrate that the model accurately represents the magnitude and phasing of intratidal flows in the dominant flow path to the southeastern portion of the Delta under both barrier configurations.

Figure A.1 Input tide based on observed water surface elevation data at Martinez

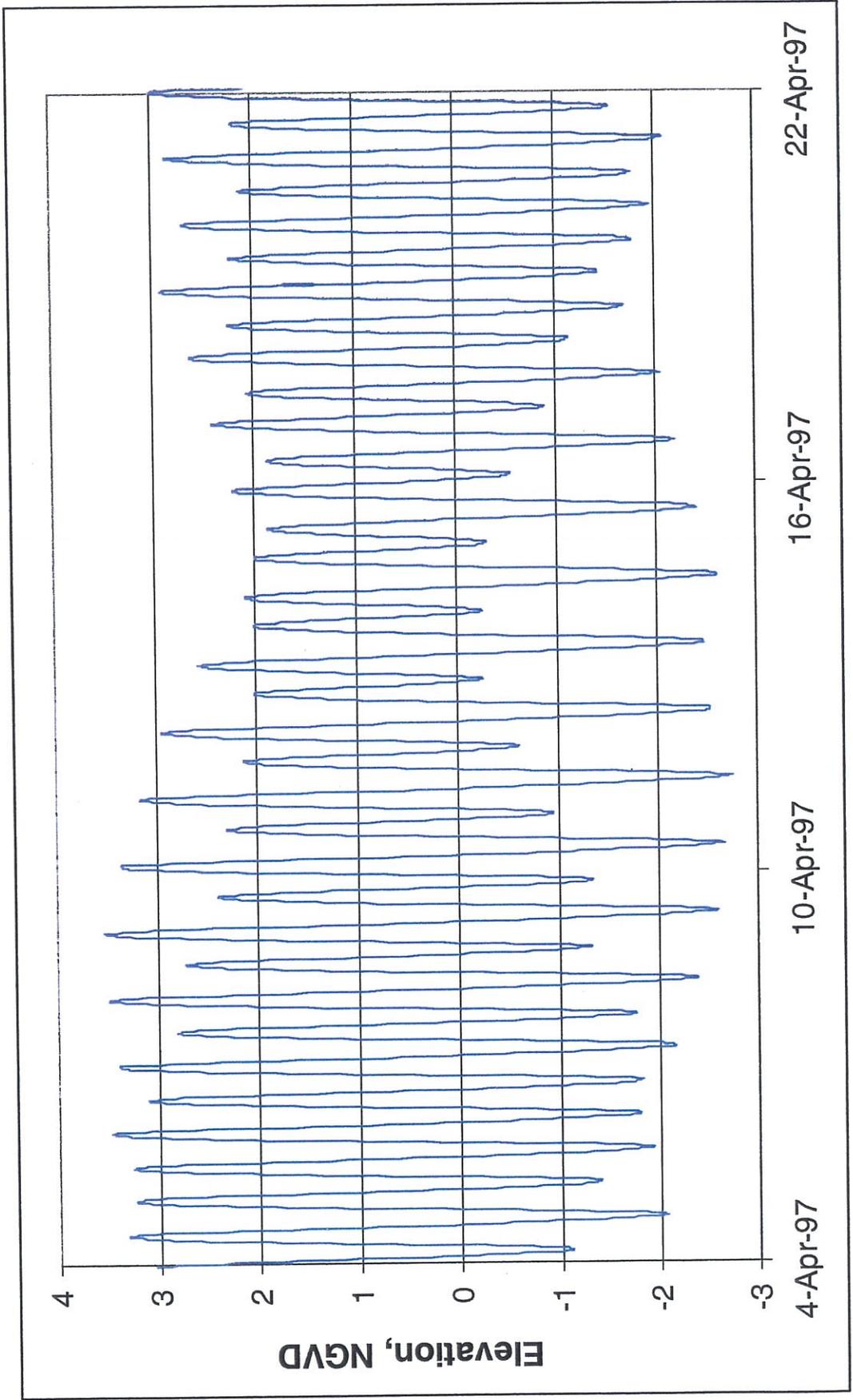


Figure A.2 Computed and observed water surface elevation in Grantline Canal prior to installation of temporary south Delta facilities

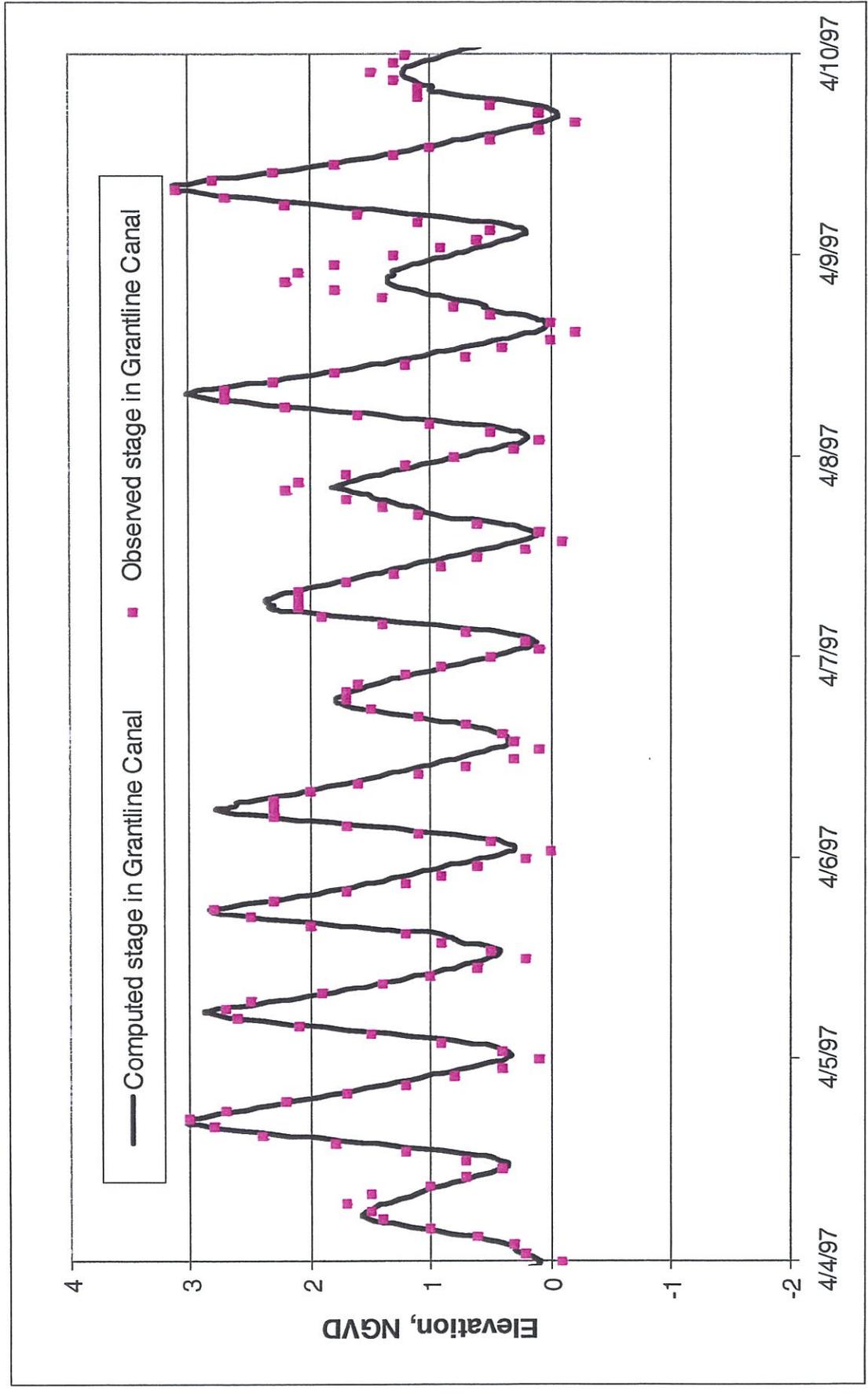


Figure A.3 Computed and observed water surface elevation in Grantline Canal following installation of temporary south Delta facilities

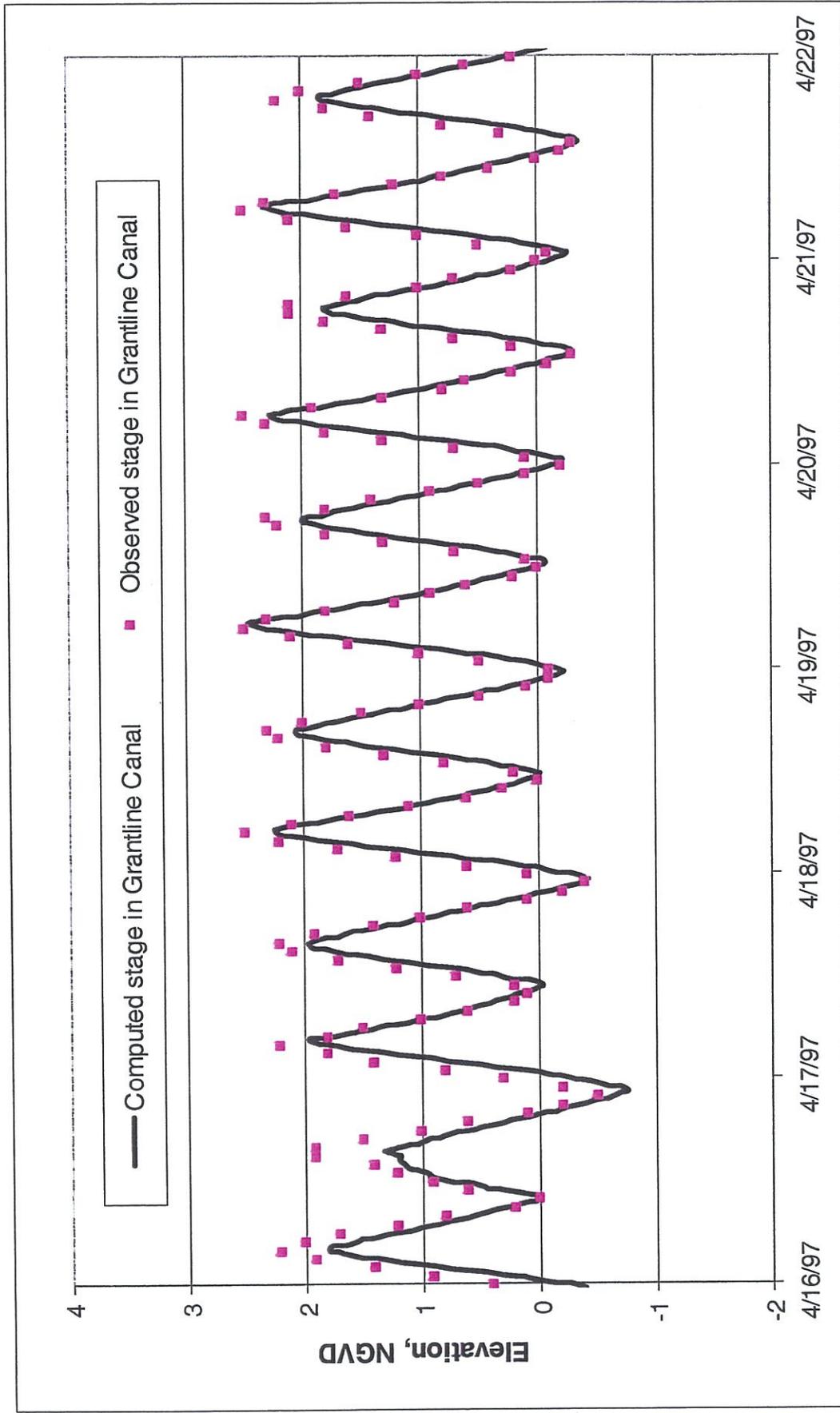


Figure A.4 Computed and observed water surface elevation in Old River near the DMC prior to installation of temporary south Delta facilities

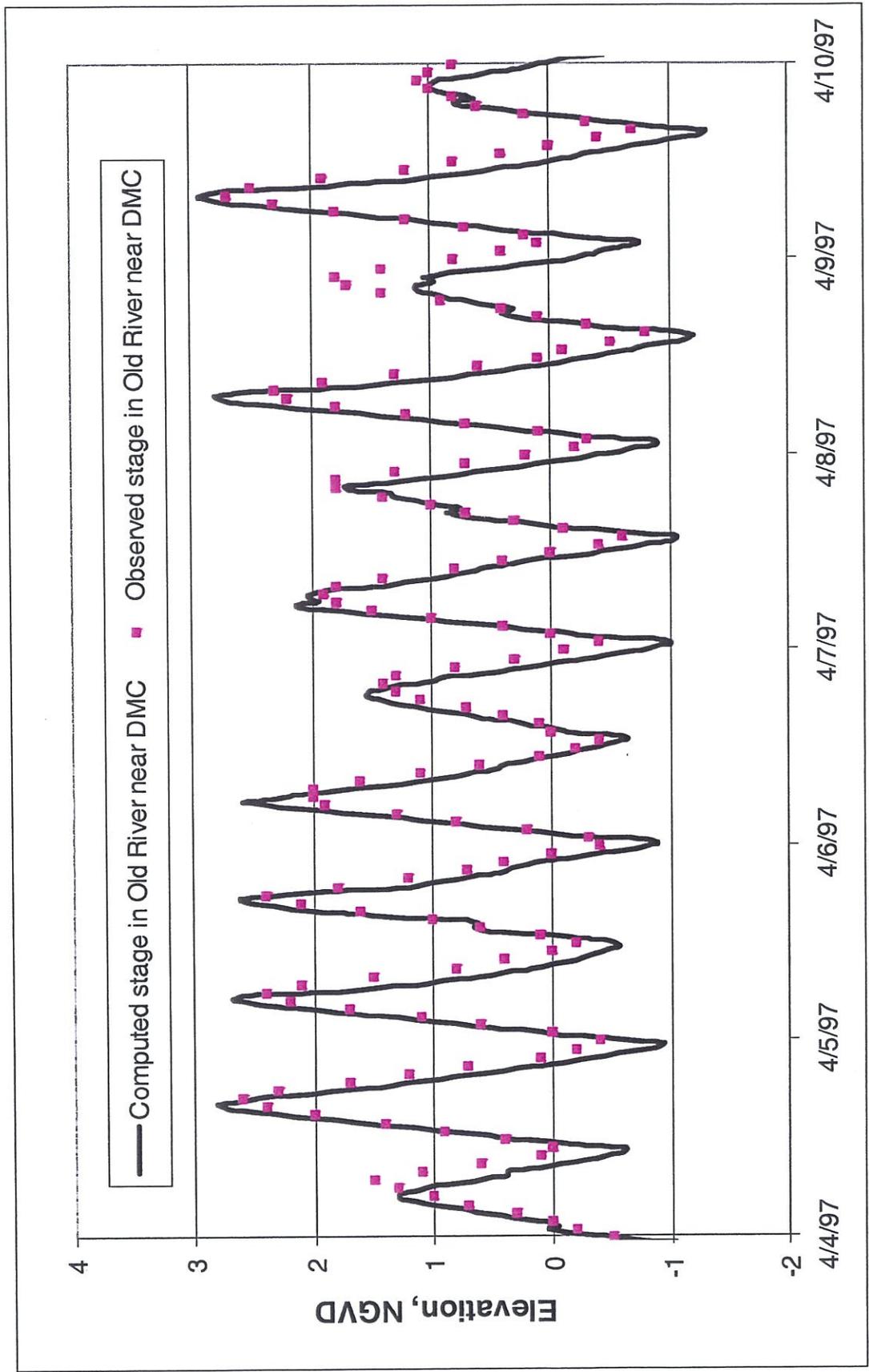


Figure A.5 Computed and observed water surface elevation in Old River near the DMC following installation of temporary south Delta facilities

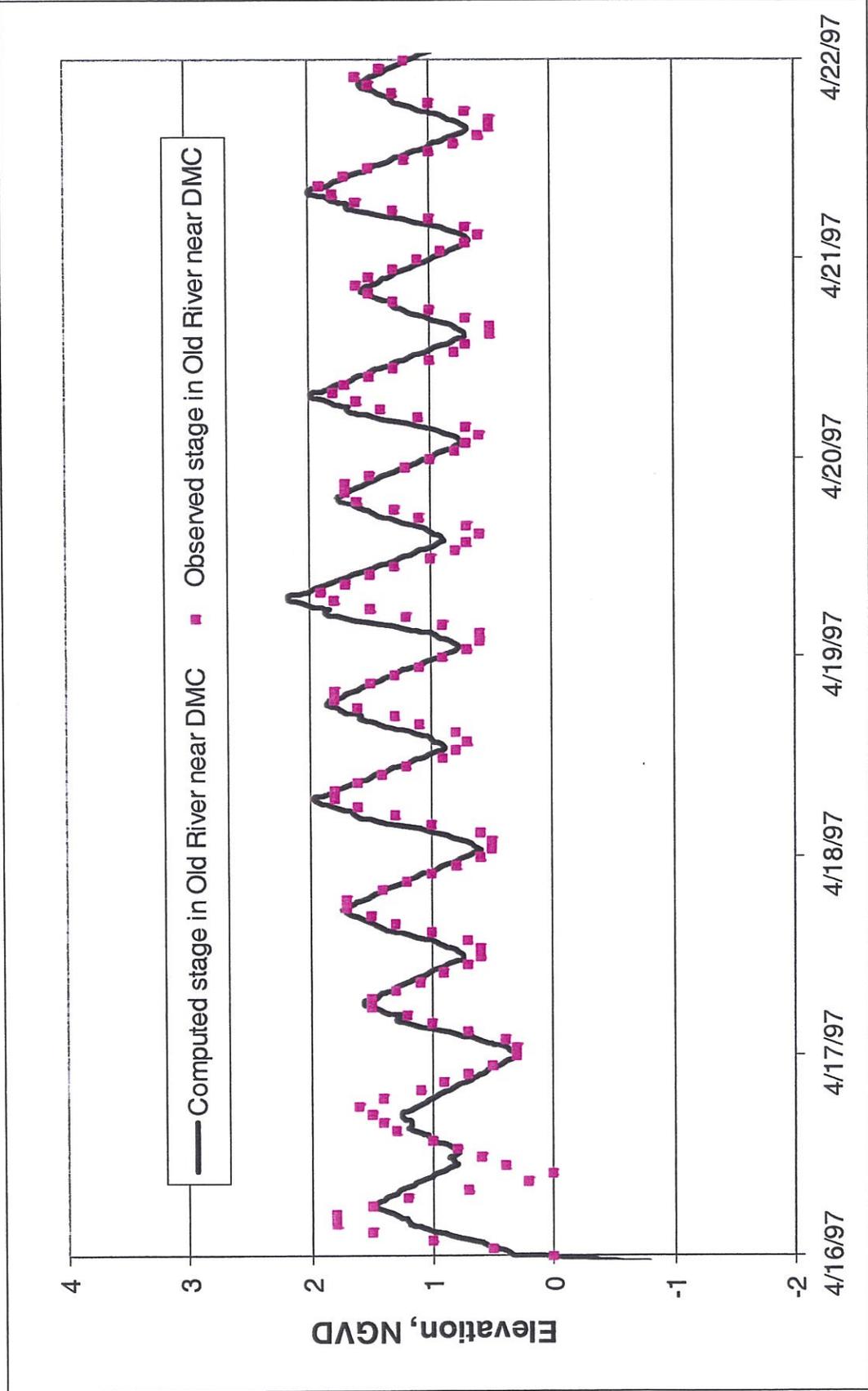


Figure A.6 Computed and observed flows in Victoria Canal prior to installation of temporary south Delta facilities

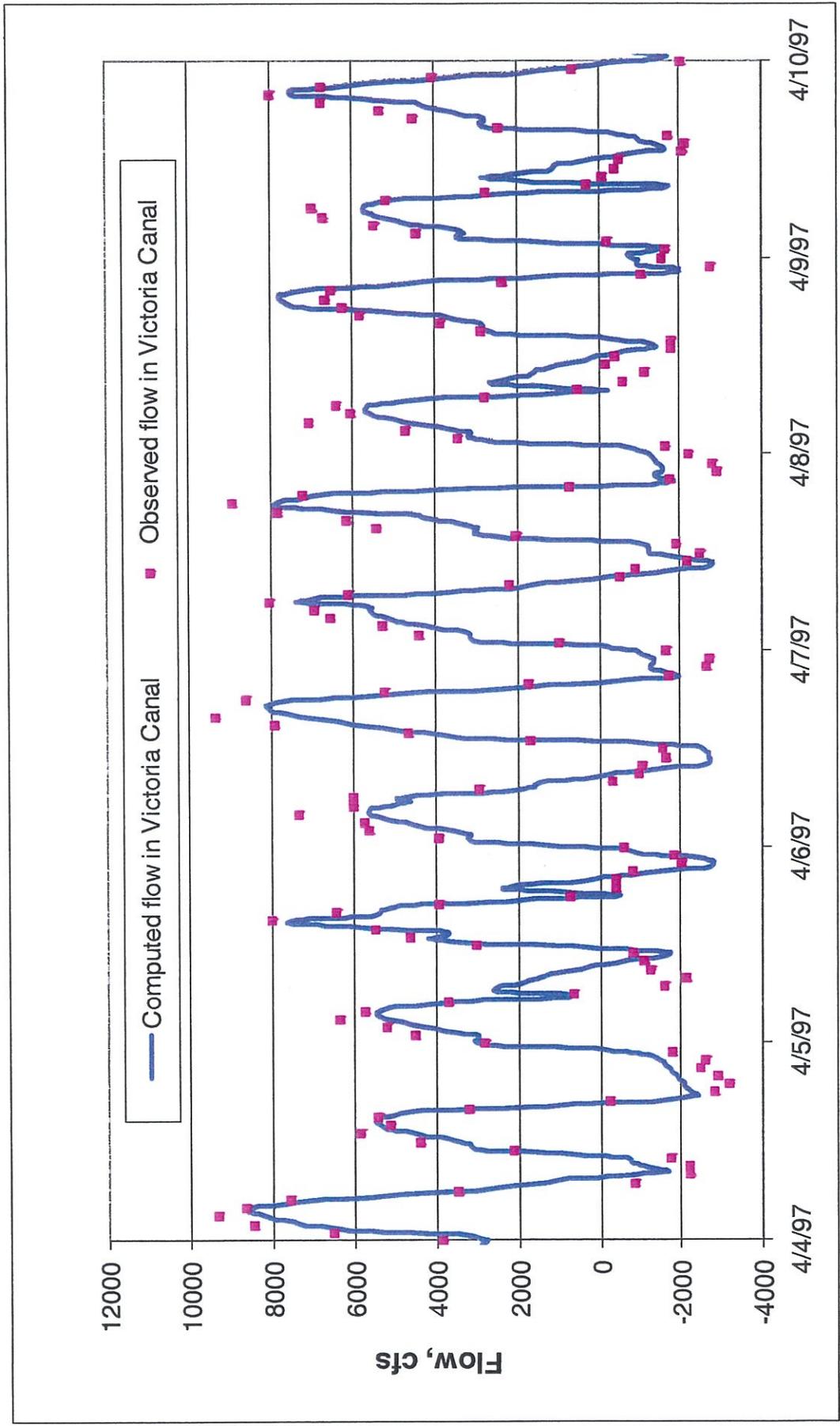


Figure A.7 Computed and observed flows in Victoria Canal following installation of temporary south Delta facilities

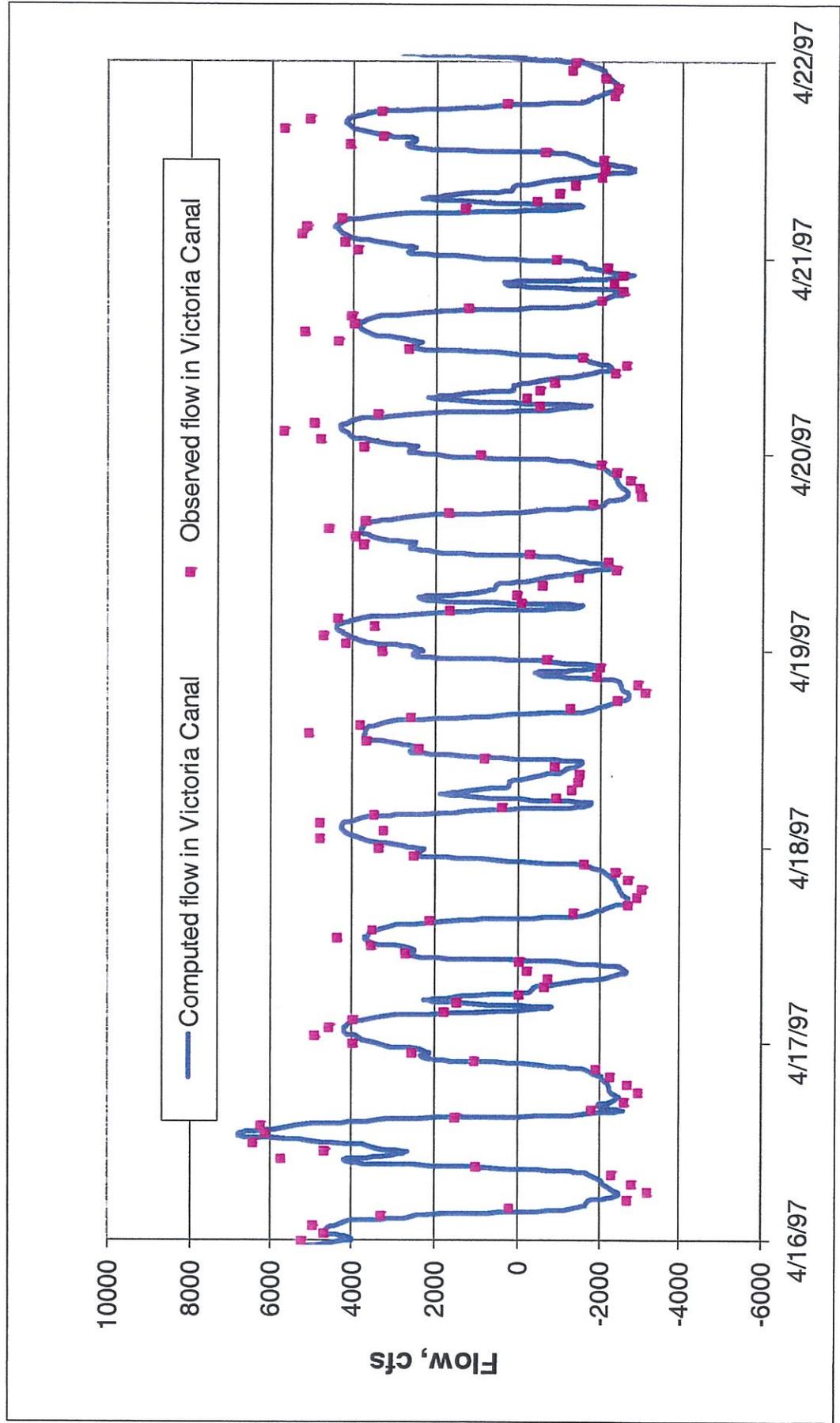
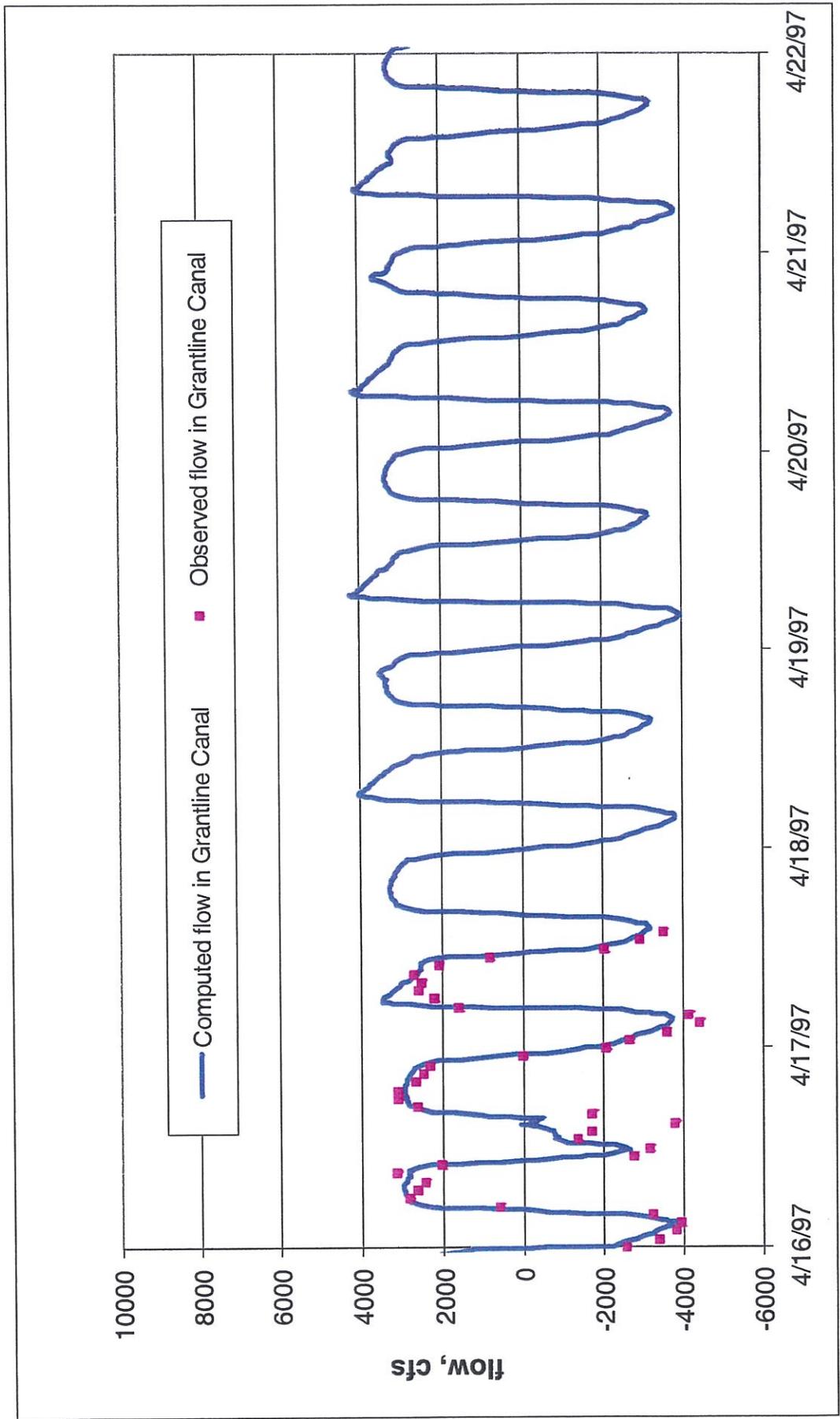




Figure A.9 Computed and observed flows in Grantline Canal at Tracy Bridge following installation of temporary south Delta facilities



# TRACY WASTEWATER TREATMENT PLANT EXPANSION MITIGATION MONITORING AND REPORTING PROGRAM

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SCH No. 2000012039



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**SEPTEMBER 2002**

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MITIGATION MONITORING AND REPORTING PROGRAM  
FOR THE  
TRACY WASTEWATER TREATMENT PLANT EXPANSION

---

SCH No. 2000012039

*Prepared for:*

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**September 2002**

**MITIGATION MONITORING PROGRAM CONTENTS**

This document is the Mitigation Monitoring Program (MMP) for the Tracy Wastewater Treatment Plant (WWTP) Expansion “proposed project”. The MMP includes a brief discussion of the legal basis for and purpose of the program, discussion and direction regarding complaints about noncompliance, a key to understanding the monitoring matrix, and the monitoring matrix itself.

**LEGAL BASIS OF AND PURPOSE FOR THE MITIGATION MONITORING PROGRAM**

California Public Resources Code Section 21081.6 requires public agencies to adopt mitigation monitoring or reporting programs whenever certifying an environmental impact report (EIR) or a mitigated negative declaration. This requirement facilitates implementation of all mitigation measures adopted through the California Environmental Quality Act (CEQA) process.

The MMP contained herein is intended to satisfy the requirements of CEQA as they relate to the proposed WWTP Expansion EIR. It is intended to be used by City of Tracy (City) staff, participating agencies, project contractors and mitigation monitoring personnel during implementation of the project.

The intent of the MMP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMP will provide for monitoring of construction activities as necessary, on-site identification and resolution of environmental problems, and proper reporting to City Staff.

**DEVELOPMENT AND APPROVAL PROCESS**

The timing elements of mitigation measures and definition of the development process has been provided in detail through this MMP to assist existing and future City staff by providing the most usable monitoring document possible.

**RESPONSIBILITIES AND AUTHORITY**

The City of Tracy Public Works Department will have primary responsibility for the operation and implementation of the MMP. The Public Works Department will be responsible for the following activities:

- Coordination of monitoring activities.
- Direction of the preparation and filing of compliance reports.
- Maintenance of records concerning the status of all mitigation measures.

**MONITORING MATRIX**

The tables on the back pages of the MMP identify the measures proposed for the proposed WWTP Expansion. These mitigation measures are reproduced from the EIR for the project. The tables have the following columns:

**Mitigation Measure:** Lists the mitigation measures identified within the WWTP Expansion EIR for a specific impact, along with the number for each measure as enumerated in the EIR.

## **MITIGATION MONITORING PROGRAM**

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**Implementation and Monitoring Action:** Identifies when the mitigation measure will be implemented and who is responsible for implementing and monitoring the fulfillment of the measure.

**Enforcement/Monitoring Agency:** References the City department or any other public agency responsible for enforcement/monitoring of the mitigation measure.

**Timing:** Identifies at what point in time the mitigation measure will be implemented.

**Mitigation Completed:** Spaces to be initialed and dated by the individual designated to verify adherence to a specific mitigation measure.

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<b>HUMAN HEALTH/RISK OF UPSET</b>				
<p><b>MM 4.2.1</b> Prior to construction, coordination with property owners and regulators will confirm the presence of contaminants in the vicinity of the construction areas. If necessary, the location of structures to be constructed will either be moved, e.g., the pipeline will be rerouted, or protection of worker health and safety would be maintained through adherence to state and federal occupational health and safety and hazardous waste standards. If hazardous materials are unexpectedly encountered during construction, work will be halted until regulatory agencies have been notified and permission has been obtained to proceed with construction (unless prior procedures have been developed during the design process and agreed to by regulatory agencies ahead of time). In any case, if hazardous materials are encountered adequate personal protective equipment will be used to protect worker health and safety and an appropriate disposal location will be identified for the contaminated soil.</p>	<p>The City of Tracy Department of Development and Engineering Services will coordinate with property owners and regulators prior to construction (and if appropriate during construction) to confirm the presence of contaminants in the vicinity of construction areas.</p>	<p>City of Tracy Department of Development and Engineering Services</p>	<p>Prior to construction and, if necessary, during project construction.</p>	
<b>TRAFFIC AND CIRCULATION</b>				
<p><b>MM 4.3.1a</b> The City shall ensure that area roadways damaged by the project are returned to pre-project conditions.</p>	<p>The City of Tracy Department of Development and Engineering Services shall examine roadways prior to and after construction to ensure that any project-inflicted damage is repaired.</p>	<p>City of Tracy Department of Development and Engineering Services, San Joaquin County Department of Public Works.</p>	<p>Examine roadways prior to beginning construction and following completion of construction.</p>	
<p><b>MM 4.3.1b</b> The construction contractor shall notify, as appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, San Joaquin County Public Works Department, Road Maintenance Division about the schedule for project construction as soon as project approvals are received. The purpose of this notification will be to postpone any planned roadway resurfacing and/or improvement projects in the project area and coordinate such improvement projects with project construction schedule.</p>	<p>The construction contractor shall work in conjunction with affected jurisdictions to ensure that planned roadway resurfacing and/or improvement projects in the project area are coordinated with the WWTP expansion.</p>	<p>City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Department of Public Works.</p>	<p>Prior to construction.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>MM 4.3.1c</b> The construction traffic control plan shall include appropriate measures for traffic control such as methods for signage, partial lane closures, and restrictions on commute-hour construction. As appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, or San Joaquin County Public Works Department, Road Maintenance Division, will ensure access for residences along Arbor Avenue, MacArthur Drive and Delta Avenue is maintained during construction activities. The City of Tracy Department of Public Works or San Joaquin County Public Works Department, Road Maintenance Division shall provide noticing to the City of Tracy Police Department, San Joaquin County Sheriff Department and the Tracy Fire Department.</p>	<p>The City of Tracy Department of Development and Engineering Services, the City of Tracy Department of Public Works, and the San Joaquin County Department of Public Works shall develop and enforce the construction traffic control plan during construction activities.</p>	<p>City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Department of Public Works.</p>	<p>Prior to commencing construction and during construction.</p>	
<p><b>MM 4.3.1d</b> The construction contractor shall repair any project-related roadway damage, including new overlays on affected roadways.</p>	<p>The City of Tracy Department of Public Works and San Joaquin County, as appropriate, shall ensure that the construction contractor repairs any project-related roadway damage.</p>	<p>City of Tracy Department of Public Works, San Joaquin County Department of Public Works.</p>	<p>Following completion of construction.</p>	
<p><b>NOISE</b> <b>MM 4.4.1</b> Where construction activities would occur within close proximity to noise-sensitive receptors, those activities should adhere to the requirements of the City of Tracy and San Joaquin County with respect to hours of operation, muffling of internal combustion engines, and other factors that affect construction noise generation and effects on noise-sensitive land uses.</p>	<p>The City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Planning/Community Development Department, as appropriate, shall ensure that construction activities adhere to the requirements of the affected jurisdiction's noise standards.</p>	<p>City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Planning/Community Development Department.</p>	<p>Prior to approval of final improvement plans.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>MM 4.4.2</b> All pumps and related equipment that are to be located along the new outfall pipeline shall be enclosed or located far enough from existing noise sensitive areas so as to result in noise levels below the County noise standards at the outdoor activity areas of the receiving land uses.</p>	<p>The City of Tracy Department of Development and Engineering Services, the City of Tracy Department of Public Works, and the San Joaquin County Planning/Community Development shall ensure that all noise generating components of the project are properly sited so as not to significantly and adversely affect sensitive receptors.</p>	<p>City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Planning/Community Development</p>	<p>Prior to approval of final improvement plans.</p>	
<p><b>AIR QUALITY</b> <b>MM 4.5.1</b> During construction, various measures will be taken to minimize PM<sub>10</sub> emissions and to reduce vehicle emissions. These measures may include, but are not limited to, the following:</p> <ul style="list-style-type: none"> <li>• Construction vehicles will use paved roads to access the construction sites when possible.</li> <li>• Limit vehicle speeds to 10 mph on unpaved roads.</li> <li>• Enclose, cover, or water excavated soil twice daily.</li> <li>• Stockpiles of excavated soil shall be covered at all times when the stockpile is not in use. The covers shall be secured. If stockpiles are such a size that they cannot be feasibly covered, stockpiles shall be routinely watered.</li> <li>• Excavation activities shall be reduced or halted during high winds (e.g., that is when surface wind speeds exceed 20 miles per hour).</li> <li>• Replant vegetation in disturbed areas following the completion of grading and/or construction activities.</li> <li>• Minimize vehicle idling time to 10 minutes.</li> </ul>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that appropriate measures to minimize emissions are enforced.</p>	<p>The City of Tracy Department of Development and Engineering Services, and the San Joaquin Valley Air Pollution Control District.</p>	<p>Concurrently during all phases of project construction.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>NOISE</b></p> <p><b>MM 4.6.1a</b> Section 7 consultation with the NMFS and USFWS shall be required in conjunction with Corps Section 10 Rivers and Harbors Act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to special-status fish species. Consultation with CDFG would also be required to comply with the California Endangered Species Act. As part of the consultation process, a biological assessment shall be prepared by a fisheries biologist. The biological assessment shall evaluate potential temperature effects of final project design.</p>	<p>The National Marine Fisheries Service, the U.S. Fish and Wildlife Service, Army Corps of Engineers, and the City of Tracy Department of Public Works and the California Department of Fish and Game shall ensure that the project complies with all applicable regulations pertinent to special-status fish species.</p>	<p>National Marine Fisheries Service, U.S. Fish and Wildlife Service, Army Corps of Engineers, City of Tracy Department of Public Works and the California Department of Fish and Game.</p>	<p>Prior to commencing construction in Old River.</p>	
<p><b>MM 4.6.1b</b> In order to ensure further that the project will not reduce the number, or restrict the range of an endangered, rare or threatened fish species, the City of Tracy shall commit to the following:</p> <ol style="list-style-type: none"> <li>1) Conduct four years of intensive monitoring of thermal impacts in the vicinity of the City's discharge to determine the thermal impacts, if any, associated with the proposed project;</li> <li>2) Develop a reasonable range of mitigation measures that will ensure that the project will not reduce the number, or restrict the range, of an endangered, rare, or threatened fish species; these measures include, but are not limited to: <ul style="list-style-type: none"> <li>• Mechanical cooling with cooling tower onsite at WWTP;</li> <li>• Mechanical cooling with tower and chillers (onsite at WWTP);</li> <li>• Passive cooling in pond/wetland (onsite adjacent to WWTP);</li> <li>• Utilize effluent on dedicated lands – seasonal irrigation (onsite adjacent to WWTP);</li> <li>• Store/utilize recycled water for us in Spring, Summer, and Fall (storage onsite adjacent to WWTP; irrigation offsite;</li> </ul> </li> </ol>	<p>The National Marine Fisheries Service, the U.S. Fish and Wildlife Service, Army Corps of Engineers, and the City of Tracy Department of Public Works and the California Department of Fish and Game shall ensure that the project complies with all applicable regulations pertinent to special-status fish species.</p>	<p>National Marine Fisheries Service, U.S. Fish and Wildlife Service, Army Corps of Engineers, City of Tracy Department of Public Works and the California Department of Fish and Game.</p>	<p>Ongoing during all phases of the proposed project.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<ul style="list-style-type: none"> <li>• Baseline project – new outfall without effluent cooling project;</li> </ul> <p>(3) Upon completion of that monitoring, and absent the implementation of alternative mitigation measures resulting from consultation under the federal and the California Endangered Species Acts, the City will implement sufficient mitigation measures to ensure that the project will not reduce the number, or restrict the range, of an endangered, rare, or threatened fish species.</p>	<p>The City shall implement the following measures to improve the quality of the City's source water:</p> <p>(a) Transfer of up to 10,000 AFY from South San Joaquin Irrigation District ("SSJID"). The average TDS concentration for SSJID water is approximately 90 mg/l [Dave R. and Steve B. need to reconcile];</p> <p>(b) Transfer of up to 10,000 AFY of Central Valley Project Water from the West Side &amp; Banta Carbona Irrigation District ("WSID/BCID"). The average TDS concentration for WSID/BCID water is less than 400 mg/l;</p> <p>(c) During critically dry years, the City believes it will receive at least 9,000 AFY because of the seniority of the SSJID right and 5,000 AFY from the existing Central Valley Project ("CVP") water service contract. The City</p>	<p>City of Tracy Department of Engineering and City of Tracy Department of Public Works</p>	<p>Ongoing during all phases of proposed project.</p>	
<p><b>MM 4.6.2</b> The City shall ensure that the proposed project cause <u>no increase</u> in the TDS concentrations and in the EC levels of the effluent of the receiving waters. The City will achieve this performance standard by maintaining the TDS mass in the effluent at the current permitted level of 75,000 lbs/day (average dry weather flow).</p>				

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
	<p>(d) Reasonably foreseeable decreases in domestic water softening in response to the shift towards lower TDS water supply. These decreases will be achieved through: (1) a decrease in the installation of softeners in response to the changes in source water; (2) the retirement of existing water softeners as they wear out; (3) a decrease in the salt usage by those water softeners that adjust salt usage based upon automatic monitoring of water hardness; and (4) the implementation of legislation that allows the City to ban water softeners after January 2003 if the City demonstrates a compelling reason to do so. In addition, City can exercise additional source control measures on commercial and industrial customers to limit</p>			

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>MM 4.6.3</b> Construction of the project will require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to satisfy federal and state regulatory requirements. The SWPPP would include a range of measures and Best Management Practices (BMPs) to minimize potential for stormwater runoff and accidental releases into surface waters during construction. Elements of the SWPPP may include, but are not limited to, the following:</p> <ul style="list-style-type: none"> <li>• BMPs for erosion control such as grading management techniques, drainage ditches, straw bales, gravel filter berms, dikes, filtering devices, or silt fences, or netting, as appropriate;</li> <li>• Use of silt curtains in Old River prior to beginning construction activities;</li> <li>• An environmental training program for all field personnel to communicate environmental concerns and appropriate work practices, including spill prevention and response measures;</li> <li>• Identification of areas for refueling and vehicle maintenance activities and hazardous materials storage away from sensitive areas.</li> <li>• Where feasible, install a storm drain interceptor on the WWTP site to provide an option for conveying stormwater to the emergency storage pond for subsequent treatment in the plant.</li> </ul>	<p>TDS contribution by adopting a technically based local limit for TDS.</p> <p>The Central Valley Regional Water Quality Control Board, and the City of Tracy Department of Development and Engineering Services shall ensure that the project develop a SWPPP prior to commencing construction and shall monitor its implementation during project construction.</p>	<p>Central Valley Regional Water Quality Control Board, City of Tracy Department of Development and Engineering Services.</p>	<p>The SWPPP must be completed prior to beginning construction. Water quality control measures shall be implemented during construction.</p>	
<p><b>SURFACE HYDROLOGY, GROUNDWATER AND WATER QUALITY</b> <b>MM 4.7.1a</b> The City shall design all facilities in accordance with seismic design criteria of the most recent edition of the Uniform Building Code (UBC) for Seismic Zone 3. This shall be reflected in project improvement plans.</p>	<p>The City of Tracy Department of Development and Engineering Services, and the City of Tracy Department of Public Works shall design all components of the project in accordance with the UBC.</p>	<p>City of Tracy Department of Development and Engineering Services, and City of Tracy Department of Public Works.</p>	<p>Prior to the approval of final improvement plans.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>MM 4.7.1b</b> The City shall retain a qualified geologist to prepare a geotechnical and soil engineering study for the project site identifying potential seismic hazards. The study shall include design standards for infrastructure facilities to minimize damage associated with liquefaction. The recommendation of the study shall be incorporated into plans.</p>	<p>Prior to approval of final engineering drawings, the City of Tracy Department of Public Works shall retain a qualified geologist to prepare a geotechnical and soil engineering study.</p>	<p>City of Tracy Department of Public Works.</p>	<p>Prior to the approval of final engineering drawings. Improvement plants.</p>	
<p><b>MM 4.7.2</b> In accordance with the California Building Code (Title 24, Part 2) Section 1804A.3 and A.5, liquefaction and seismic settlement potential shall be addressed in the design level geotechnical engineering investigations. Facilities shall be designed to withstand expected forces associated with seismic events. These design features shall be incorporated in project improvement plans.</p>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that all project components are designed in accordance with the provisions of the California Building Code (Title 24, Part 2) Section 1804A.3 and A.5.</p>	<p>City of Tracy Department of Development and Engineering Services.</p>	<p>Prior to approval of final improvement plans.</p>	
<p><b>MM 4.7.3</b> Design level geotechnical investigations shall be performed to characterize soil conditions at or near each planned facility or structure. The findings of these investigations shall be incorporated into plans. Mitigation may include, but is not limited to the following measures:</p> <ul style="list-style-type: none"> <li>• Expansive soils can be excavated and replaced with non-expansive materials. The required depth of excavation shall be specified by a registered civil engineer based on actual soil conditions;</li> <li>• Expansive soils may be treated in place by mixing them with lime. Lime-treatment alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive; and/or,</li> <li>• Implement alternative engineering practices considered appropriate by the City of Tracy Department of Development and Engineering Services to mitigate expansive soils conditions.</li> </ul>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that design level geotechnical investigations are performed for each planned facility or structure.</p>	<p>City of Tracy Department of Development and Engineering Services.</p>	<p>Prior to approval of final improvement plans.</p>	
<p><b>MM 4.7.4</b> Prior to grading activities, an erosion control plan that indicates proper control of siltation, sedimentation and other pollutants through the use of Best Management Practices (BMPs) shall be prepared and submitted to City of Tracy Department</p>	<p>The City of Tracy Department of Development and Engineering Services shall require that an erosion control plan for the project be</p>	<p>City of Tracy Department of Development and Engineering Services</p>	<p>Prior to approval of final improvement plans.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p>of Development and Engineering Services. The plan shall be incorporated into the project improvement plans and construction contracts. BMPs may include, but are not limited to, the following:</p> <p>a) Grading operations shall be targeted for the dry months of the year. If project construction occurs during rainy weather, sediment traps, barriers, covers or other methods approved by the City shall be used to reduce erosion.</p> <p>b) Excavated materials shall not be deposited or stored where the material could be washed away by stormwater runoff.</p>	<p>submitted prior to commencing grading activities.</p>			
<b>BIOLOGICAL RESOURCES</b>				
<p><b>MM4.8.1a</b> In order to avoid disturbance of remaining habitat for pond turtle, the location of equipment staging areas for all microtunnelling activities shall be situated within areas that are already paved, tilled, or otherwise disturbed.</p>	<p>The City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game shall ensure that staging areas are located to avoid pond turtle habitat.</p>	<p>City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game.</p>	<p>Prior to construction activities.</p>	
<p><b>MM4.8.1b</b> A focused survey for northwestern pond turtle shall be conducted by a qualified biologist prior to the onset of construction activities to determine presence or absence of these species. The surveys shall include all staging areas for microtunnelling activities and areas along aquatic habitats that will be modified during construction. If construction is planned after April 1<sup>st</sup>, this survey should include looking for turtle nests within the construction area. If turtles are found within the proposed construction area, the individuals should be moved out of the construction site under consultation with CDFG. A qualified biological monitor shall be present during construction activities to ensure no turtles are harmed during construction.</p>	<p>Prior to commencing construction, the City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game shall ensure that a survey for northwestern pond turtle is conducted and that construction is monitored by a qualified biologist.</p>	<p>City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game.</p>	<p>Prior to and during construction activities.</p>	
<p><b>MM 4.8.1c</b> If possible, construction shall be avoided when adults and hatchlings are overwintering (October-February), due to the likelihood of turtle adults and juveniles being present in upland habitats. If upland construction activities are scheduled in winter, a qualified biological monitor shall be present during</p>	<p>The City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game shall ensure that the project is carried out</p>	<p>City of Tracy Department of Development and Engineering Services and the California</p>	<p>Prior to and during construction activities.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE I  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p>construction activities.</p> <p><b>MM 4.8.2</b> If construction is proposed during breeding season (February-August), a focused survey for migratory bird nests shall be conducted within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests on the site. If active nests are found, the California Department of Fish and Game shall be notified and, no construction activities shall take place within 500 feet of the nest until the young have fledged as well as other mitigation measures deemed necessary by the California Department of Fish and Game. If no active nests are found during the focused survey, no further mitigation will be required.</p>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that a survey for migratory bird nests is prepared if construction is proposed during breeding season (February – August). If active nests are discovered the California Department of Fish and Game shall be notified and direct appropriate action as necessary.</p>	<p>Department of Fish and Game.</p> <p>City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game</p>	<p>Prior to and during construction activities.</p>	
<p><b>MM 4.8.3a</b> If construction is proposed during the breeding season (February-August), a focused survey for burrowing owls shall be conducted in accordance with CDFG protocol within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests. If no active nests are found, no further mitigation is required.</p>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that a survey for burrowing owls is prepared if construction is proposed during breeding season. The survey shall be conducted in accordance with California Department of Fish and Game protocol.</p>	<p>City of Tracy Department of Development and Engineering Services and the California Department of Fish and Game</p>	<p>Prior to construction activities.</p>	
<p><b>MM 4.8.3b</b> If active nests are found, consultation with California Department of Fish and Game shall be required to determine an appropriate level of avoidance and/or mitigation. At a minimum, occupied burrows shall not be disturbed during the</p>	<p>The City of Tracy Department of Development and Engineering Services shall consult with the California Department of Fish and</p>	<p>City of Tracy Department of Development and Engineering Services</p>	<p>Prior to construction activities.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p>nesting season (February 1 through August 21) unless a qualified biologist approved by California Department of Fish and Game verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. No construction may take place within 500 feet of active burrows and any burrows to be removed shall be removed during the non-breeding season. Mitigation measures that may be required include preservation in perpetuity of occupied burrows along with a minimum of 6.5 acres of adjacent foraging habitat, or relocation to another suitable preservation area and creation of new burrows and foraging habitat within the preservation area.</p>	<p>Game if active nests are found.</p>	<p>and the California Department of Fish and Game</p>		
<p><b>MM 4.8.4.a</b> A Fish Rescue Plan shall be prepared that details measures to avoid take of fish during construction of the coffer dam and pumping of water out of the coffer dam back into Old River. To ensure compliance and implementation of the plan, a fisheries biologist shall be present during construction and pumping (dewatering) activities.</p>	<p>The City of Tracy Department of Development and Engineering Services, under the direction of the National Marine Fisheries Service, the U.S. Fish and Wildlife Service and the California Department of Fish and Game shall prepare a Fish Rescue Plan prior to commencing construction. The Plan will be implemented during construction under the direction of a fisheries biologist.</p>	<p>City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service and the California Department of Fish and Game.</p>	<p>Prior to the issuance of permits for any work within Old River. The fish rescue will be implemented during coffer dam dewatering.</p>	
<p><b>MM 4.8.4b</b> Section 7 consultation with the NMFS and USFWS shall be required in conjunction with Corps Section 10 Rivers and Harbors Act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to listed and special-status fish species. Consultation with CDFG would also be required to comply with the California Endangered Species Act. As part of the consultation process, a biological assessment shall be prepared by a fisheries biologist. The biological assessment shall evaluate final design of the coffer dam and clarifying method for water returned into Old River and in-river construction activity. A</p>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that the performance measures set forth in this mitigation measure and measures identified through the Section 7 consultation process shall be implemented with construction and operational activities of the project.</p>	<p>City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department</p>	<p>Prior to the issuance of permits for any work within Old River.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p>Mitigation Plan shall be prepared that includes measures to avoid or mitigate short-term construction-related impacts that could occur as a result of this project are discussed in Section 4.6.1 (see Mitigation Measure 4.6.2). At a minimum, the following mitigation measures shall be incorporated into the mitigation plan:</p> <ul style="list-style-type: none"> <li>• Turbidity and suspended sediment levels in water returned to Old River shall not exceed more than 10% above ambient levels in Old River.</li> <li>• Prior to any construction activities within Old River, silt curtains shall be put in place around the work area.</li> <li>• Construction outside of the coffer dam shall occur between June 1 and September 30 (or period requested by the NMFS) to avoid the seasonal period in which juvenile or adult migrating salmonids are present in Old River and the lower San Joaquin River. Seasonal periods (fish windows) and other constraints on dredging and construction activity within the Old River channel will be subject to Section 7 consultation with NMFS and USFWS.</li> </ul>		of Fish and Game.		
<p><b>MM4.8.5a</b> A jurisdictional delineation shall be conducted for the project area. The Corps shall be consulted to verify agreement with the results of the determination.</p>	<p>The City of Tracy Department of Development and Engineering Services in coordination with the U.S. Army Corps of Engineers, shall prepare a jurisdictional delineation.</p>	<p>City of Tracy Department of Development and Engineering Services, U.S. Army Corps of Engineers.</p>	<p>Prior to the issuance of permits for any work within Old River.</p>	
<p><b>MM 4.8.5b</b> If there will be discharge into jurisdictional waters of the U.S., the appropriate Section 10 and 404 permit needs to be obtained for proposed work within the waters. Construction work within Old River and placement of the new pipeline and diffuser will require permits under both CWA Section 404 and Rivers and Harbors Act Section 10. Water Quality certification or waiver also will be required for this work. Because Old River provides habitat for special-status fish species, it will be necessary to determine appropriate work windows and construction measures to avoid impacts to special-status fish as discussed in more detail in the section on special-status fish species (See MM 4.8.4b).</p>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that required permits and approvals are obtained and associated requirements are complied with.</p>	<p>City of Tracy Department of Development and Engineering Services, U.S. Army Corps of Engineers, and the Regional Water Quality Control Board.</p>	<p>Prior to the issuance of permits for any work within Old River.</p>	

TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>MM 4.8.5c</b> Prior to any work within Old River or adjacent to riparian habitat along Paradise Cut, the California Department of Fish and Game shall be contacted to determine whether or not a Streambed Alteration Agreement is required, pursuant to Section 1600 of the California Fish and Game Code. If required, the City shall coordinate with California Department of Fish and Game in developing appropriate mitigation, and shall abide by the conditions of any executed permits. In either event, the City shall adopt a riparian brush rabbit protection program (in consultation with California Department of Fish and Game and U.S. Fish and Wildlife Service) for construction activities in the land area between Paradise Cut and Old River that will include the following protection measures:</p> <ul style="list-style-type: none"> <li>▪ All ground disturbance and construction activities shall maintain a 300-foot buffer from the outer edge of the dripline of riparian vegetation, as set forth in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan.</li> <li>▪ Temporary fencing to prohibit rabbits from entering the construction area shall be placed along the edge of the riparian vegetation and removed after the completion of construction activities.</li> <li>▪ A qualified biologist shall be present during construction activities to ensure that riparian brush rabbits are not harmed by construction.</li> <li>▪ Construction activities shall be scheduled as advised by California Department of Fish and Game and U.S. Fish and Wildlife Service.</li> <li>▪ Construction activities shall avoid riparian zones. The "riparian zone" within the context of this document refers to areas immediately adjacent to Old River, Tom Paine Slough, and Paradise Cut that are dominated by hydrophytic vegetation such as cottonwood, willow, California black walnut, and shrub/vine species such as California wild grape, button-willow, sandbar willow, and Himalayan blackberry. Riparian vegetation is within the zone influenced by subsurface moisture from the adjacent waterbody and generally shows an abrupt vegetative break between hydrophytic and upland plant species.</li> </ul>	<p>The City of Tracy Department of Development and Engineering Services shall contact the California Department of Fish and Game and the U.S. Fish and Wildlife Service prior to commencing work in Old River to determine if a Streambed Alteration Agreement is required.</p>	<p>City of Tracy Department of Development and Engineering Services, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service.</p>	<p>Prior to the commencement of any construction activities between Paradise Cut and Old River.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>HISTORIC AND CULTURAL RESOURCES</b></p> <p><b>MM 4.9.1a</b> If any prehistoric or historic artifacts, or other indications of archaeological resources are found once the project is underway, all work in the immediate vicinity must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall be consulted to evaluate the finds and recommend appropriate mitigation measures.</p>	<p>The City of Tracy Department of Development and Engineering Services shall order all work to cease if any prehistoric, historic or other archaeological resources are found during construction.</p>	<p>City of Tracy Department of Development and Engineering Services</p>	<p>During construction activities.</p>	
<p><b>MM 4.9.1b</b> If human remains are discovered, all work must stop in the immediate vicinity of the find, and the County Coroner must be notified, according to Section 7050.5 of the California Health and Safety Code. If the remains are Native American, the coroner will notify the Native American Heritage Commission, which in turn will inform a most likely descendant. The descendant will then recommend to the landowner appropriate disposition of the remains and any grave goods.</p>	<p>The City of Tracy Department of Development and Engineering Services shall include a provision in construction contracts that orders all work to cease if any human remains are discovered and shall ensure that the County Coroner is notified. If the remains are Native American, the County Coroner shall notify the Native American Heritage Commission.</p>	<p>City of Tracy Department of Development and Engineering Services.</p>	<p>During construction activities.</p>	
<p><b>PUBLIC SERVICES AND UTILITIES</b></p>				
<p><b>MM 4.10.1a</b> The City of Tracy will consult with PG&amp;E, Pacific Bell, and any other known service providers in the area to determine whether construction will impact utilities or occur in proximity to known infrastructure. WWTTP development plans shall be reviewed and the recommendations of these agencies shall be incorporated into final development plans.</p>	<p>The City of Tracy Department of Development and Engineering Services will consult with all applicable service providers to determine if the project will disrupt or disturb existing infrastructure.</p>	<p>City of Tracy Department of Development and Engineering Services.</p>	<p>Prior to approval of final improvement plans.</p>	
<p><b>MM 4.10.1b</b> The proposed outfall pipeline alignment shall be surveyed by a firm specializing in locating buried infrastructure. This task shall include contacting appropriate utility agencies and companies, reviewing maps, etc.</p>	<p>The City of Tracy Department of Development and Engineering Services shall ensure that the outfall pipeline alignment is surveyed by a firm specializing in locating buried infrastructure during the design stage of the project.</p>	<p>City of Tracy Department of Development and Engineering Services.</p>	<p>Prior to approval of final improvement plans.</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**

**TABLE 1  
MITIGATION MONITORING AND REPORTING PROGRAM**

Mitigation Measure	Implementation and Monitoring Action	Enforcement/ Monitoring Agency	Timing	Mitigation Completed
<p><b>MM 4.10.1c</b> The cost of any repair or relocation of affected infrastructure that results from construction activities will be assumed by the City of Tracy if the utility has prior title to the property.</p>	<p>The City of Tracy Department of Development and Engineering Services shall assume the cost of any repairs to infrastructure that may be affected during construction.</p>	<p>City of Tracy Department of Development and Engineering Services.</p>	<p>Prior to approval of final improvement plans.</p>	
<p><b>MM 4.10.2</b> The City of Tracy Fire Department shall review plans for the WWTP facilities to determine if special fire services or facilities are required. These facilities may include special hazardous material equipment, temporary and/or permanent water tanks, and fire breaks. The recommendations of the Fire Department shall be incorporated into project improvement plans.</p>	<p>The City of Tracy Department of Development and Engineering Services shall review plans for the WWTP facilities to determine if special fire services or facilities are required.</p>	<p>City of Tracy Fire Department and Department of Development and Engineering Services.</p>	<p>Prior to approval of project improvement plans.</p>	

RESOLUTION 2002-431

CERTIFYING THE FINAL ENVIRONMENTAL IMPACT REPORT (SCH NO. 2000012039) FOR THE WASTEWATER TREATMENT PLANT EXPANSION, MAKING APPROPRIATE FINDINGS PURSUANT TO SECTION 21081 OF THE PUBLIC RESOURCES CODE, ADOPTING THE MITIGATION MONITORING AND REPORTING PROGRAM FOR THE TRACY WASTEWATER TREATMENT PLANT EXPANSION; AND APPROVING THE WASTEWATER TREATMENT PLANT EXPANSION

WHEREAS, The proposed project includes improvements to the City's existing wastewater treatment facilities, construction of additional facilities at the existing plant site, construction of a second outfall pipe and diffuser in Old River, as well as the acquisition of easements and rights-of-way, and

WHEREAS, The improvements will increase the treatment capacity from the existing 9 mgd to 16 mgd, and

WHEREAS, In accordance with Sections 15063 and 15082 of the CEQA Guidelines, the City prepared and circulated a Notice of Preparation (NOP) and Initial Study for the Wastewater Treatment Plant Expansion EIR (SCH NO. 2000012039) for public and agency review on January 12, 2000, and

WHEREAS, The comments received in response to the NOP were included as an appendix to the Draft EIR, and

WHEREAS, Comments raised in response to the NOP were considered and addressed during preparation of the EIR, and

WHEREAS, Upon completion of the Wastewater Treatment Plant Expansion Draft Environmental Impact Report (DEIR), the City prepared and distributed a Notice of Availability pursuant to CEQA Guidelines Section 15087, and

WHEREAS, Pursuant to CEQA Guidelines, Sections 15087 and 15105, the public comment and review period covered a 52-day review period from October 22, 2001 to December 13, 2001, and

WHEREAS, Written comment letters were received during this public review period, and

WHEREAS, A City Council public hearing was held on December 4, 2001 in order to obtain additional comments on the DEIR, and

WHEREAS, Comments on environmental issues were raised during the public comment period, and

WHEREAS, Responses to comments were prepared as part of the Final EIR (FEIR), and

WHEREAS, The FEIR did not introduce any significant new information that would require recirculation of the Draft EIR pursuant to CEQA Guidelines Section 15088.5, and

WHEREAS, The City Council desires to approve the Wastewater Treatment Plant Expansion Project;

NOW, THEREFORE, BE IT RESOLVED That the City Council hereby finds:

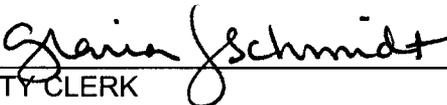
1. The Final Environmental Impact Report (SCH NO. 2000012039), for the Wastewater Treatment Plant Expansion, is hereby certified as complete and in compliance with the California Environmental Quality Act attached hereto as Exhibit A.
2. The Final EIR was presented to the City Council as the lead agency and that the City Council reviewed and considered the information contained in the Final EIR prior to approving the project.
3. The Final EIR reflects the City Council's independent judgment and analysis.
4. A Mitigation Monitoring and Reporting Program attached hereto as Exhibit B is hereby adopted, in accordance with Section 21081.6 of the Public Resources Code.
5. With regard to each significant environmental effect identified in the Final Environmental Impact Report: (a) changes or alterations have been required in, or incorporated into, the project, which changes or alterations mitigate or avoid significant effects on the environment; or (b) specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR. Substantial evidence for this conclusion is attached hereto as Exhibit C (Findings of Fact).
6. The Wastewater Treatment Plant Expansion project is hereby approved.
7. A Notice of Determination shall be filed with the San Joaquin County Clerk, in accordance with Section 21152 of the Public Resources Code.

\*\*\*\*\*

The foregoing Resolution 2002-431 was passed and adopted by the Tracy City Council on the 15th day of October, 2002, by the following vote:

AYES:	COUNCIL MEMBERS:	HUFFMAN, IVES, TOLBERT, TUCKER, BILBREY
NOES:	COUNCIL MEMBERS:	NONE
ABSENT:	COUNCIL MEMBERS:	NONE
ABSTAIN:	COUNCIL MEMBERS:	NONE

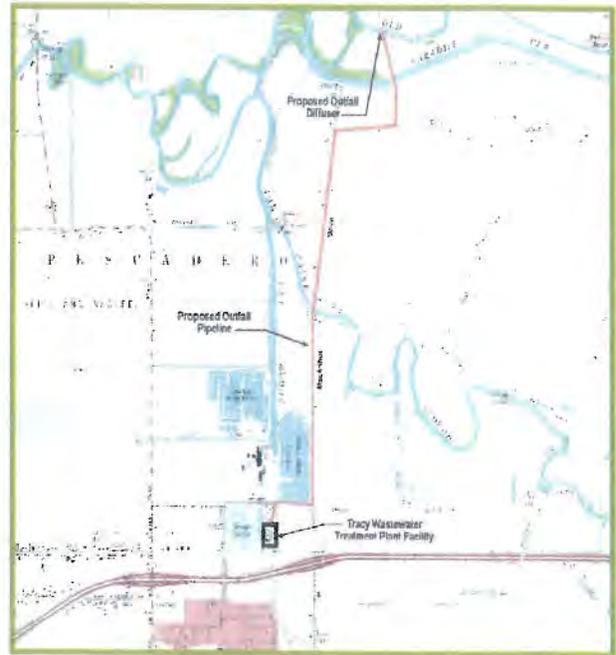
  
\_\_\_\_\_  
MAYOR

ATTEST:  
  
\_\_\_\_\_  
CITY CLERK  
09-100702jcPW

# TRACY WASTEWATER TREATMENT PLANT EXPANSION FINDINGS OF FACT

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SCH No. 2000012039



*PREPARED FOR:*

CITY OF TRACY  
520 TRACY BOULEVARD  
TRACY, CA 95376

*PREPARED BY:*

**PMC**  
PACIFIC MUNICIPAL  
CONSULTANTS

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SACRAMENTO, CA 95827

SEPTEMBER 2002

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FINDINGS OF FACT  
FOR THE  
TRACY WASTEWATER TREATMENT PLANT EXPANSION

---

SCH No. 200012039

*Prepared for:*

CITY OF TRACY  
Development and Engineering Services Department  
520 Tracy Boulevard  
Tracy, CA 95376  
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*Prepared by:*

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September 2002

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**Certification and Findings Relating to the Tracy Wastewater Treatment Plant Final Environmental Impact Report and Approval of the expansion of the WWTP, engineering details and plans associated with the expansion, outfall diffuser and outfall pipeline and acquisition of easements and rights-of-way in Compliance with the California Environmental Quality Act.**

## **I. INTRODUCTION**

The Tracy City Council (Council) hereby adopts the following findings regarding the Council's certification of the Project's Final Environmental Impact Report dated September 2002 (EIR) as well as the City's approval of the Tracy Wastewater Treatment Plant (WWTP or "the project") including engineering details and plans for the expansion, outfall diffuser and outfall pipeline and acquisition of easements and rights-of-way.

## **II. PURPOSE AND BACKGROUND**

### **A. The Project**

These findings relate to the WWTP. The project consists of increasing the wastewater treatment capacity of the existing wastewater treatment plant to correspond with planned and approved growth in the City of Tracy. Increased plant capacity from 9 million gallons per day (MGD) to 16 MGD average dry weather flow (ADWF) would be made possible by installing additional treatment facilities on unused portions of the existing WWTP site. A new effluent conveyance pipeline and outfall to Old River is also proposed as part of the expansion. In addition to an increased wastewater flow capacity, the plant would be upgraded in anticipation of more stringent effluent discharge requirements.

### **B. Purpose of the EIR**

Pursuant to the California Environmental Quality Act, Public Resources Code Sections 21000 et seq. and the CEQA Guidelines, Cal. Code Regs., Tit. 14 Sections 15000, *et seq.* (collectively, "CEQA"), an EIR was prepared for the project to analyze the environmental effects of the project. The Draft EIR ("Draft EIR") was circulated from August 1, 2001 to December 17, 2001 for public review and comment in accordance with CEQA. Responses to comments, together with other information, were prepared and contained in the Final EIR ("Final EIR"). The Final EIR also incorporates by reference the Draft EIR. [14 C.C.R. § 5132(a)]. The City of Tracy is the CEQA Lead Agency for the project, and prepared the Draft EIR and Final EIR.

**C. Procedural Background**

The lead agency conducted a thorough public information program during the environmental review process. The following is a summary of that program.

1. The City issued a Notice of Preparation on January 12, 2000.
2. A Draft EIR was prepared in October 2001. A formal Notice of Availability (“NOA”) of the Draft EIR was prepared and circulated on October 22, 2001, as required by CEQA. The NOA was circulated to over 40 responsible agencies, adjacent property owners and interested parties, including any person who filed a written request for such a notice.
3. Approximately 75 copies of the Draft EIR were available and circulated for public review by concerned citizens and public agencies. The public was invited to submit written comments on the Draft EIR. Interactions with the public have included one public hearing on the Draft EIR. Listed below are the various public meetings/hearings that have been held during this process. At these meetings/hearings, the agency provided information about the project, the potential environmental impacts and the CEQA review process, as well as the schedule for project implementation. At each meeting/hearing, members of the public had the opportunity to ask questions and express their concerns and interests for the project.

**Public Meetings Held During the CEQA Process**

<b>Date</b>	<b>Event</b>
November 10, 1999	Community Workshop
August 16, 2000	Scoping Meeting
December 4, 2001	Public Hearing

4. In response to comments received concerning the Draft EIR, a Final EIR was issued on October 1, 2002.
5. Copies of the Final EIR were sent to responsible agencies and interested parties, including any person who filed a written request for such a notice as well as any person who commented on the Draft EIR.
6. Approximately 50 copies of the Final EIR were available and circulated for public review by concerned citizens and public agencies.

### III. DESCRIPTION OF THE RECORD

For purposes of CEQA and these findings, the record before the City Council includes, without limitation, the following:

- A. All applications for approvals related to the project;
- B. The Draft EIR and all appendices to the Draft EIR;
- C. All notices of availability, the Notice of Preparation, Notice of Determination, staff reports and presentation materials related to the project;
- D. All studies conducted for the project and contained in, or referenced by, staff reports, the Draft EIR, or the Final EIR;
- E. All public reports and documents related to the project prepared for the City of Tracy and other agencies;
- F. All documentary and oral evidence received and reviewed at public hearings and workshops related to the project, the Draft EIR, and the Final EIR;
- G. For documentary and informational purposes, all locally-adopted land use plans and ordinances, including, without limitation, general plans, specific plans and ordinances, together with environmental review documents, findings, mitigation monitoring programs and other documentation relevant to planned growth in the area;
- H. Any additional items not included above, if they are required by law.

### IV. GENERAL FINDINGS

#### A. Certification of Final EIR

In accordance with CEQA [14 C.C.R. § 15090], in adopting these findings, the City of Tracy certifies that the Final EIR has been completed in compliance with CEQA and that it was presented to the City Council, which reviewed and considered the information in the Final EIR prior to approving the project. By these findings, the Tracy City Council ratifies and adopts the findings and conclusions of the Final EIR as set forth in these findings, except where such conclusions are specifically modified by these findings. The Final EIR and these findings represent the independent judgment and analysis of the City Council.

The Final EIR concludes that certain project impacts are potentially significant but can be mitigated to a less than significant level with the implementation of recommended mitigation measures. Section V (Less Than Significant Environmental Impacts) and VI (Potentially Significant Impacts) provide the findings regarding the project's impacts. [14 C.C.R. § 15091]. Section VII provides the findings regarding alternatives to the project. Section VIII provides further findings regarding the overriding considerations that support the City's approval of the

project. [See *id.*]. Section IX provides the findings regarding the monitoring and reporting of the mitigation measures.

## **B. Changes to the Draft EIR**

In the course of responding to comments received during the public review and comment period on the Draft EIR, certain of the Draft EIR's analyses have been modified and some new information has been added. The Draft EIR has been the subject of review and comment by the public and responsible agencies prior to the adoption of these findings. No information has revealed the existence of: (1) a significant new environmental impact that would result from the project or an adopted mitigation measure; (2) a substantial increase in the severity of an environmental impact; (3) a feasible project alternative or mitigation measure not adopted that is considerably different from others analyzed in the Draft EIR that would clearly lessen the significant environmental impacts of the project; or (4) information that indicates that the public was deprived of a meaningful opportunity to review and comment on the Draft EIR. The City Council finds that the changes and modifications made to the Draft EIR after the Draft EIR was circulated for public review do not collectively or individually constitute significant new information within the meaning of Public Resources Code Section 21092.1 and CEQA Guidelines Section 15088.5.

## **C. Evidentiary Basis for Findings**

These findings are based upon substantial evidence in the entire record before the City Council as described in Section III. The references to the Draft EIR and Final EIR set forth in the findings are for ease of reference and are not intended to provide an exhaustive list of the evidence relied upon for these findings.

## **D. Findings Regarding Mitigation Measures**

### **1. Mitigations Adopted.**

Except as otherwise noted, the mitigation measures herein referenced are those identified in the Final EIR and adopted by the City Council and set forth in the Mitigation Monitoring and Reporting Program ("MMRP").

### **2. Effect of Mitigations.**

Except as otherwise stated in these findings, in accordance with CEQA Guidelines Section 15092, the City Council finds that environmental effects of the Project will not be significant or will be mitigated to a less than significant level by the adopted mitigation measures. The City of Tracy has substantially lessened or eliminated all significant environmental effects where feasible. The City Council has determined that any remaining significant effects on the environment that are found to be unavoidable under CEQA Guidelines Section 15091, are acceptable due to overriding considerations as described in CEQA Guidelines Section 15093. These overriding considerations consist of specific environmental, economic, legal, social, technological, and other benefits of the Project, which justify approval of the Project and outweigh the unavoidable adverse environmental effects of the Project, as more fully stated in Section VIII. Except as otherwise stated in these findings, the City finds that the mitigation

measures incorporated into and imposed upon the Project will not have new significant environmental impacts that were not analyzed in the Draft EIR.

**E. Location and Custodian of Records**

Pursuant to Public Resources Code Section 15091, the City of Tracy Public Works Department is the custodian of the documents and other material that constitute the record of proceedings upon which the City Council decision is based, and such documents and other material are located at the public library located at 20 East Eaton Avenue, Tracy, CA. Copies of the Final EIR are also available for review at the City of Tracy Public Works Department, 520 Tracy Boulevard, Tracy, CA. Additionally, approximately 25 copies of the Final EIR were mailed to parties that made a request to receive the Final EIR.

**V. FINDINGS REGARDING LESS THAN SIGNIFICANT ENVIRONMENTAL IMPACTS**

The EIR identifies the thresholds of significance utilized to determine the impacts in the various resource categories discussed below. The EIR also identifies those environmental impacts that are less than significant, and therefore do not require mitigation.

**A. (Land Use) Surrounding land use compatibility.**

1. The project would be compatible with surrounding existing and planned industrial and agricultural uses.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the WWTP expansion would occur within the existing plant site, which is surrounded by agricultural and industrial uses. All of these uses are compatible with the proposed plant expansion. The WWTP site is designated Public Facilities (PUB) by the City of Tracy Urban Management Plan and is zoned Light Industrial (M1), under which the WWTP is a permitted use. The new outfall pipeline would be placed underground and would not result in any permanent land use conflicts from its operation. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**B. (Land Use) Consistency with Existing Plans and Policies**

1. The project would be consistent with the designations of the Urban Management Plan/General Plan and the City of Tracy Zoning Ordinance as well as San Joaquin's General Plan and Zoning Ordinance.

2. Findings

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. The potential impact is less than significant because land use/zoning classifications designated for the proposed project site under the City of Tracy UMP/General Plan and the City of Tracy Zoning Ordinance are Public Facilities (PUB) and Light Industrial (M1), respectively. In addition, portions of the project (new outfall pipeline) located in San Joaquin County are consistent with County land use designations (General Agriculture) and zoning designations (General Agriculture, 40-acre minimum). Because the impact is already less than significant, no additional mitigation is necessary or proposed.

C. (Land Use) Construction Impacts

1. The project would result in disturbances to the WWTP site and areas along the outfall pipeline route.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because construction impacts are temporary and would not result in permanent land use conflicts. Construction activities at the WWTP site are not expected to result in any temporary construction effects upon land uses. Construction of the new outfall pipeline would occur in the summer precluding planting for one season in the pipeline right-of-way. Following construction, the currently existing agricultural production could resume over the existing outfall pipe. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

D. (Land Use) Cumulative Land Use Impacts

1. The project would not result in direct cumulative impacts to land use.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.

- b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the expansion would occur within the boundaries of the existing site and the outfall would be located within existing roadway right-of-way or through agricultural lands and would follow essentially the same route as the existing outfall facility. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**E. (Human Health/Risk of Upset) Accidental Release**

1. The project could result in an accidental release of hazardous materials.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the project will be designed in accordance with the UFC, and workers will be trained in spill prevention according to the UFC, the facility's SPCC plan, and the California Health and Safety Code Chapter 6.95. In addition, the City of Tracy Fire Department will conduct spill and release response upon notification of WWTP staff. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**F. (Human Health/Risk of Upset) Soil/Groundwater Contamination**

1. Potential contamination from seepage from the drying beds.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because any water seeping below the drying beds will be captured through an under drain system which conveys residual liquid to the plant sewer pump station to return it to the wastewater treatment train. Capturing the seepage water minimizes the potential that it reaches the aquifer and impacts nearby drinking water wells. In addition, the City of Tracy pumps drinking water from an aquifer located 1,000 feet below ground level and would not be impacted. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**G. (Human Health/Risk of Upset) Digester Gas**

1. The project would generate increased amounts of digester gas.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the project minimizes the risk of explosion associated with increased amounts of digester gas by burning such gas to heat sludge and sustain the digestion process. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**H. (Human Health/Risk of Upset) Flooding**

1. The WWTP expansion and associated pipeline would not be affected by flood events.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the WWTP is located outside of the 100-year floodplain (see Figure 4.1-2 of the Draft EIR). In addition, the new outfall pipeline would be placed underground and would not be impacted by flood events. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**I. (Human Health/Risk of Upset) Power Outage**

1. Impacts to the WWTP as a result of a power outage.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the WWTP has sufficient back-up generator power to continue to operate all essential treatment processes during a power outage (Bayley, 2001). Because the

impact is already less than significant, no additional mitigation is necessary or proposed.

**J. (Human Health/Risk of Upset) Cumulative Storage and Transport of Hazardous Materials**

1. Cumulative impacts associated with increased storage and transport of hazardous materials.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because projects located near the WWTP do not require hazardous materials transport or storage that would cumulatively affect the amount of hazardous materials in the project area. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**K. (Human Health/Risk of Upset) Cumulative Flood Impacts**

1. Cumulative flooding impacts.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the WWTP is located outside of the 100-year floodplain (see Figure 4.1-2 of the Draft EIR). In addition, the new outfall pipeline would be placed underground and would not be impacted by flood events. Given these conditions, the project would not contribute to a cumulative flooding impact. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**L. (Traffic and Circulation) Roadway Level of Service and Construction Impacts**

1. Construction activities associated with implementation of the WWTP expansion may result in an temporary increase in traffic on existing roadways near the project site including Arbor Avenue, MacArthur Drive and Delta Avenue.

2. Findings

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. The potential impact is less than significant because it is unlikely that construction traffic and activities would significantly reduce LOS as the affected roadways are surrounded by either industrial or agricultural uses. Further, traffic conditions would return to normal following temporary disturbance associated with installation of the pipeline along area roadways. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

M. **(Traffic and Circulation) Roadway Level of Service/Operational Impacts**

1. The proposed WWTP expansion would result in approximately an 18 percent increase in traffic trips to the WWTP site.

2. Findings

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. As identified in the Draft EIR (page 4.3-6), the expansion of the WWTP is anticipated to result in a minor increase in traffic that would not typically occur during the a.m. and p.m. peak hour traffic periods. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

N. **(Traffic and Circulation) Cumulative Traffic Impacts**

1. The proposed WWTP expansion would contribute to cumulative traffic volumes to I-205.

2. Findings

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. As identified in the Draft EIR (page 4.3-8 and -9), under worst-case conditions (i.e., assuming all traffic generated by the WWTP utilized Interstate 205) the expansion of the WWTP would contribute less than one percent of the total traffic on Interstate 205 by the year 2012. In addition, WWTP traffic would not typically occur during the a.m.

and p.m. peak hour traffic periods. Moreover, it is unlikely that the project's impacts would significantly reduce LOS as the affected roadways are surrounded by either industrial or agricultural uses. Consequently, the project's contribution to cumulative traffic impacts is less than significant. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**O. (Noise) Operational Noise Impacts Associated with the WWTP Expansion**

1. Operational noise impacts of the WWTP expansion are expected to be less than significant.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the 2.5 dB increase associated with the facility expansion is not predicted to translate into a 2.5 dB increase in overall ambient noise levels in the project vicinity primarily due to masking by existing traffic noise (Interstate 205). In addition, the WWTP expansion noise emissions are expected to be within compliance of the Tracy Noise Ordinance. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**P. (Noise) Cumulative Noise**

1. The proposed project is not expected to result in cumulative noise impacts.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because residences are not currently affected by noise from the WWTP nor would they be affected by operational or traffic noise from the plant following expansion. Designated land uses adjacent to the WWTP include industrial and agricultural uses. Moreover, noise from the WWTP expansion is expected to be masked by traffic noise along Interstate 205. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**Q. (Air Quality) Operational Emissions**

1. Emission of air toxics and criteria air pollutants could occur from WWTP expansion.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. Table 4.5-4 in the Draft EIR (page 4.5-8) identifies that the WWTP expansion would reduce air toxic emissions as compared to the existing WWTP as a result of changes in plant operation. As described in the Draft EIR (page 4.5-8), the WWTP expansion would result in minor increases in criteria air pollutants that would be below the Federal Clean Air Act conformity nonattainment/serious de minimus emission rates. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**R. (Air Quality) Odor**

1. Odorous emissions would be significantly reduced as a result of the new treatment systems being installed.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because features of the proposed project including removal of the biotowers, installation of screenings washers and compactors that would remove additional organics, and covering of the headworks would reduce odor emissions. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**S. (Air Quality) Federal Air Quality Conformity**

1. Estimated emissions from the project would be in conformity with the Federal Clean Air Act.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.

- b. Facts and Reasoning that Support Finding. As described in the Draft EIR (page 4.5-8), the WWTP expansion would result in minor increases in criteria air pollutants that would be below the Federal Clean Air Act conformity nonattainment/serious de minimus emission rates. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**T. (Air Quality) Cumulative Air Quality Impacts**

1. The WWTP is sized to meet only a portion of planned growth and is consistent with the UMP.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because any cumulative impacts in the air basin have been addressed by the Air Quality Attainment Plan, which includes planned growth in the City of Tracy as allowed under the Urban Management Plan. The WWTP expansion would serve approximately half of the growth anticipated under the Urban Management Plan. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**U. (Surface Hydrology, Groundwater, and Water Quality)**

**Near Field – Ammonia**

1. The project would not result in acute or chronic impacts on aquatic life due to ammonia levels in the discharge.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. Ammonia levels in discharge will not result in significant acute or chronic impacts on aquatic life for the following reasons. Ammonia toxicity is a function of ammonia concentration, pH and the duration of exposure. The projected ammonia concentration from the Proposed Project will be approximately 0.2 to 3 mg/l, N, with a monthly average of 0.5 mg/l, N at a pH of 8.0 or lower. Importantly, the proposed project's projected effluent

concentration of ammonia is below the USEPA acute criteria for ammonia (5.6 mg/l at a pH of 8.0). The proposed project's projected average effluent concentration of ammonia is also below the USEPA chronic criteria for ammonia (2.1 mg/l at a pH of 7.6), which is based on a 30-day exposure at the criterion concentration.

Current available data identifies the ammonia concentration in the receiving waters to be 0.22 mg/l (pH of 8.7). While the proposed project's average effluent concentration for ammonia is expected to be above the current receiving water concentration, this impact is considered less than significant for the following reasons. First, the ammonia concentration in the City's current discharge from its secondary treatment facilities ranges from 15 to 30 mg/l. The proposed project (tertiary treatment with nitrification facilities) is expected to reduce ammonia concentration in the effluent by 14.8 mg/l to 27 mg/l, thereby resulting in a beneficial change to the receiving waters' current ammonia concentration, which is influenced by the City's current discharge. Second, both the current receiving waters' concentration of ammonia and the expected improved ammonia concentration in the receiving waters, as a result of the proposed project's installation of tertiary treatment and nitrification facilities, comply with the USEPA acute and chronic criteria for ammonia. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

## V. (Surface Hydrology, Groundwater, and Water Quality)

### Near Field - Trace Metals

1. The project would not result in adverse impacts in receiving waters relative to trace metals, specifically copper.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. Even assuming no dilution within the receiving waters, the proposed project will comply with acute and chronic water quality criteria for trace metals [See Response to Comment 1-1 in the Final EIR]. With respect to copper in particular, the average copper concentration (5 ug/l (adjusted for hardness)) in the effluent does not exceed the CTR chronic criteria of 5 ug/l (adjusted for hardness) especially after consideration of (a) an appropriate water effect ratio

(“WER”); (b) an appropriate dissolved to total translator; or (c) a dilution/mixing zone. The application of any one of these site-specific methodologies will ensure that the average copper concentration will not exceed the chronic significance threshold. Furthermore, the proposed project’s maximum effluent concentration of 10 ug/l does not exceed the CTR acute criteria of 33 ug/l (adjusted for hardness). For these reasons, the impact of the proposed project upon copper is not significant. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**W. (Surface Hydrology, Groundwater, and Water Quality)**

**Near Field - Trace Organics**

1. The project would not result in adverse impacts in receiving waters relative to trace organics.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. As indicated by Tables 2-3, 2-4, and 2-13 of the Response to Comments of the Final EIR, the City’s upgrade from secondary to tertiary treatment will result in a significant decrease in the concentration of BOD and TOC (both indicators of the quantity of organic material). Data from the Santa Rosa tertiary wastewater treatment plant indicates that the proposed project will not only reduce concentrations of trace organics within the proposed project’s effluent, but will reduce them to a non-detect levels. With respect to Bis-2 in particular, even a worst-case dilution scenario results in a finding of non-significance as compared to the chronic CTR standard. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**X. (Surface Hydrology, Groundwater, and Water Quality)**

**Near Field - Pathogens**

1. The project includes a treatment process that would remove pathogens and produce an effluent that meets strict Title 22 Unrestricted Reuse criteria requirements for unrestricted reclamation uses.

2. Findings

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. The proposed treatment process will include filtration as well as chlorination/dechlorination system that are capable of removal of *Cryptosporidium parvum* and *Giardia lamblia*, two pathogens of serious concern to drinking water suppliers. The proposed tertiary treatment process will achieve median turbidity levels of 2 nephelometric turbidity units (NTU) and median total coliform bacteria levels of less than 2.2 MPN per 100 ml. See, e.g., Pomona Virus Study (1977). The Department of Health Services has certified that effluent from the direct filtration treatment process proposed for the City is suitable for use in unrestricted recreational impoundments under Title 22 of the California Code of Regulations, provided certain criteria are met. David Spath of the Department of Health Services, Head of the Sanitary Engineering Branch, has termed water complying with these Title 22 Unrestricted Reuse criteria as “virtually pathogen free,” meaning there are not sufficient pathogens present in the treated water to generate a response (infection) in humans when exposed to the water directly (personal communication with John Gaston, CH2M HILL, March 2002). Because the impact is already less than significant, no additional mitigation is necessary or proposed.

Y. (Surface Hydrology, Groundwater, and Water Quality)

**Far Field - Dissolved Oxygen**

1. The project’s discharge would result in improved dissolved oxygen conditions in the south Delta as compared to existing conditions.

2. Findings

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. The constituents in the proposed project effluent that demand the most oxygen are Biochemical Oxygen Demand (BOD) and ammonia. The proposed project’s impacts upon dissolved oxygen will be less than significant because the proposed project will significantly reduce both BOD and ammonia as compared to the current baseline. The proposed project’s installation of tertiary treatment and nitrification facilities will significantly reduce the amount of BOD

and ammonia in the City's effluent. The proposed project will reduce the BOD concentrations from 15 mg/l to 5 mg/l (with a corresponding reduction in mass of 41 percent). The proposed project will reduce ammonia concentrations from 15 mg/l to .5 mg/l (with a corresponding reduction in mass of 93 percent). As a result of this reduction in BOD and ammonia, the proposed project's impacts upon dissolved oxygen levels are less than significant. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**Z. (Surface Hydrology, Groundwater, and Water Quality)**

**Total Dissolved Solids**

1. The project's contributions to TDS would not result in concentrations that exceed the secondary drinking water standard of 500 mg/l. [Draft EIR at page 4.6-46].
2. Findings
  - a. The potential impact is less than significant and does not require mitigation. Nonetheless, in response to concerns expressed during the public comment period regarding regional TDS concentrations, the City would increase the amount of low TDS water into the City's water supply, as called for in City Urban Management Plan Policy PF.1.5. Improvement in the quality of the City's water supply will allow the City to implement the proposed project and decrease TDS concentrations in the effluent sufficiently to maintain the TDS mass in the effluent at the current permitted average level of 75,000 lbs/day, based upon average dry weather flow conditions. (See Mitigation Measure MM 4.62).
  - b. Facts and Reasoning that Support Finding. Because the proposed project's increase would not result in concentrations that exceed the secondary drinking water standard of 500 mg/l, and because the City will maintain the TDS mass in the effluent at the current permitted average level of 75,000 lbs/day, based upon average dry weather flow conditions, the proposed project cannot cause a significant impact upon TDS. Because the impact is already less than significant, no additional mitigation is required. However, the City is proposing to implement Mitigation Measure MM 4.6.2 in order to maintain current permitted TDS mass.

**AA. (Surface Hydrology, Groundwater, and Water Quality)  
Far Field -Total Dissolved Solids**

1. The project's contributions to TDS would not result in concentrations that exceed the secondary drinking water standard of 500 mg/l. [Draft EIR at 4.6-46].
2. Findings
  - a. The potential impact is less than significant and does not require mitigation. Nonetheless, in response to concerns expressed during the public comment period regarding regional TDS concentrations, the City would increase the amount of low TDS water into the City's water supply, as called for in City Urban Management Plan Policy PF.1.5. Improvement in the quality of the City's water supply will allow the City to implement the proposed project by decreasing TDS concentrations in the effluent, thus maintaining the TDS mass in the effluent at the current permitted average level of 75,000 lbs/day, based upon average dry weather flow conditions. (See Mitigation Measure 4.63).
  - b. Facts and Reasoning that Support Finding. Because the proposed project's increase would not result in concentrations that exceed the secondary drinking water standard of 500 mg/l, and because the City will maintain the TDS mass in the effluent at the current permitted average level of 75,000 lbs/day, based upon average dry weather flow conditions, the proposed project cannot cause a significant impact upon TDS. Because the impact is already less than significant, no additional mitigation is required. However, the City is proposing to implement Mitigation Measure MM 4.6.2 in order to maintain current permitted TDS mass.

**BB. (Surface Hydrology, Groundwater, and Water Quality)**

**Far-Field - TOC**

1. The project's contributions to increases in TOC levels at the SWP and CCWD Diversion points would not significantly increase ambient TOC levels.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.

- b. Facts and Reasoning that Support Finding. Average TOC levels for the existing effluent range from 14 to 16 mg/l. With the proposed project's tertiary filters, a 50 percent reduction of TOC to 7.5 mg/l on average is anticipated; a maximum value of 10 mg/l is estimated to account for the variability above the average, which is projected to be small for high quality, tertiary treated effluent. The City's upgrade from secondary to tertiary treatment will also result in a significant decrease in mass of TOC of 11 percent. As a result of these decreases in TOC concentration and mass, the proposed project's impacts upon TOC will be less than significant. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**CC. (Surface Hydrology, Groundwater, and Water Quality)**

**Far Field – Pathogens**

1. The pathogen content of the proposed discharge will be very low due to the nature of the proposed treatment facilities (filtration and disinfection).
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The proposed treatment process will include filtration as well as a chlorination/dechlorination system that is capable of removal of *Cryptosporidium parvum* and *Giardia lamblia*, two pathogens of serious concern to drinking water suppliers. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**DD. (Surface Hydrology, Groundwater, and Water Quality)**

**Far Field – Trace Metals**

1. The project would not result in adverse impacts in receiving waters relative to trace metals, including copper.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.

- b. Facts and Reasoning that Support Finding. Even assuming no dilution within the receiving waters (*i.e.*, right at the point of discharge from the outfall), the proposed project will comply with acute and chronic water quality criteria for trace metals (See Response to Comment 1-1 in the Final EIR). With respect to copper in particular, the average copper concentration (5 ug/l (adjusted for hardness)) in the effluent does not exceed the CTR chronic criteria of 5 ug/l (adjusted for hardness) especially after consideration of (a) an appropriate water effect ratio (WER); (b) an appropriate dissolved to total translator; or (c) a dilution/mixing zone. The application of any one of these site-specific methodologies will ensure that the average copper concentration will not exceed the chronic significance threshold. Furthermore, the proposed project's maximum effluent concentration of 10 ug/l does not exceed the CTR acute criteria of 33 ug/l (adjusted for hardness). For these reasons, the impact of the proposed project upon copper is not significant. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**EE. (Surface Hydrology, Groundwater, and Water Quality)**

**Far Field – Trace Organics**

1. The project would not result in adverse impacts in receiving waters relative to trace organics.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. As indicated by Tables 2-3, 2-4, and 2-13 of the Response to Comments of the Final EIR, the City's upgrade from secondary to tertiary treatment will result in a significant decrease in the concentration of BOD and TOC (both indicators of the quantity of organic material). The resulting chlorinated organics, and other trace organics, in the effluent are anticipated to be at similar or lower concentrations with the project as compared to current concentrations without the project. Data from the Santa Rosa tertiary wastewater treatment plant indicates that the proposed project will not only reduce concentrations of trace organics within the proposed project's effluent, but will reduce them to a non-detect levels. With respect to Bis-2 in particular, even a worst-case dilution scenario results in a finding of non-significance as compared to the chronic CTR standard. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**FF. (Geology and Soils) Unique Geologic Features**

1. The project would not impact any unique geologic features.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. There are no unique geologic features present in the project area. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**GG. (Geology and Soils) Landslides**

1. The project area is relatively flat.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential for landslides is unlikely because the site is relatively flat. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**HH. (Geology and Soils) Cumulative Geology and Soils Impacts**

1. Geology and soils impacts associated with the proposed project area are site-specific.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because it would be mitigated through project-specific mitigation measures. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**II. (Biological Resources) Common Plant Communities**

1. The project would result in the loss of habitat associated with common plant communities.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The WWTP expansion is expected to result in the removal of ruderal and grassland vegetation as well as result in temporary impacts to active cropland areas. However, these impacts and disturbances are temporary and/or small in comparison to the amount of these habitats in the region (which are widespread). Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**JJ. (Biological Resources) Habitat for Common Resident and Migratory Wildlife**

1. The project would temporarily disturb and remove habitat for common resident and migratory wildlife.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The WWTP expansion is expected to result in the removal of ruderal and grassland vegetation that is utilized by common resident and migratory wildlife. However, these impacts and disturbances are temporary and/or small in comparison to the amount of these habitats in the region (which are widespread). Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**KK. (Biological Resources) Special-Status Plants**

1. The project would not result in the loss of special-status plant species.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.

- b. Facts and Reasoning that Support Finding. The WWTP expansion improvements would occur along Paradise Cut and Tom Paine Slough, which provide potential habitat for slough thistle, Mason's lilaeopsis and Delta button celery. However, the project proposes to micro-tunnel or use other trenchless technology under these areas to avoid impacts to the waterways and the adjacent vegetation. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**LL. (Biological Resources) Special-Status Bats**

1. The project would not result in the loss of special-status bat species.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. While potential special-status bat species could occur in the riparian area along Paradise Cut, the project proposes to micro-tunnel or use other trenchless technology under this area to avoid impacts to the waterway and the adjacent vegetation. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**MM. (Biological Resources) Swainson's Hawk Foraging Habitat**

1. The project would not result in significant impacts to Swainson's hawk foraging habitat.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The WWTP expansion is expected to result in the removal of ruderal and grassland vegetation that may be utilized as Swainson's hawk foraging habitat. However, these impacts and disturbances are temporary and disturbed agricultural land area along Paradise Cut and Old River would be returned to agricultural production after the completion of construction. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**NN. (Biological Resources) Riparian Woodland Habitat**

1. The project would not result in significant impacts to riparian woodland habitat.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The WWTP expansion improvements would occur along Paradise Cut, which includes riparian woodland vegetation. However, the project proposes to micro-tunnel or use other trenchless technology under this area to avoid impacts to the waterway and the riparian vegetation. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**OO. (Historical and Cultural Resources) California Register and National Register Properties and Districts**

1. National Register or California Register listed or eligible districts were not identified within the project area.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because no eligible districts according to the criteria in the National or California Register were identified. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**PP. (Historical and Cultural Resources) Known Cultural Resources**

1. The project would not impact any known significant cultural resources.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.

- b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the resources were previously evaluated under contract for the California Department of Transportation and were not considered eligible for the National Register of Historic Places. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**QQ. (Historical and Cultural Resources) Cumulative Cultural Resources Impacts**

1. The project could contribute to cumulative cultural resource impacts.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because project-specific mitigation (mitigation measures MM 4.9.1a and b) would avoid destruction of previously undiscovered resources. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**RR. (Public Services and Utilities) Increased Electrical Usage**

1. The WWTP expansion would result in increased demands for electricity to support new facilities.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because adequate power supplies are expected to be available to serve the proposed expansion (See Draft EIR page 4.10-4). Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**SS. (Public Services and Utilities) Increased Load on Existing Electrical Facilities**

1. The project would not necessitate the need for new off-site electrical facilities to accommodate power needs of the WWTP expansion.

**2. Findings**

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. The potential impact is less than significant because the planned Pacific Gas and Electric West Tracy substation would provide sufficient electricity to accommodate the proposed project and anticipated growth in Tracy. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**TT. (Public Services and Utilities) Cumulative Electrical Impacts**

1. Electrical increases associated with expansion of the WWTP would result in a minor incremental increase to the State's overall demand for power

**2. Findings**

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. The potential impact is less than significant because adequate electrical supplies are anticipated to be available to serve the WWTP expansion (see Draft EIR page 4.10-6). Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**UU. (Public Services and Utilities) Cumulative Fire Protection Impacts**

1. The addition or change in the use of hazardous materials at the WWTP may result in a change in the level of fire protection or service required.

**2. Findings**

- a. The potential impact is less than significant and does not require mitigation.
- b. Facts and Reasoning that Support Finding. The potential impact is less than significant because fire impacts would be mitigated at a project-level through project-specific mitigation measures. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**VV. (Public Services and Utilities) Biosolids Disposal**

1. Expansion of the wastewater treatment plant would increase the amount of screened and grit solids as well as sludge (biosolids) currently generated at the WWTP.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because disposal of screened and grit solids are expected to continue to be landfilled and would not exceed the permitted capacity of a landfill disposal site. Biosolids are expected to continue to be beneficially land applied and the quantities generated at the Tracy WWTP would not exceed the capacity of local landfill disposal sites. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

**WW. (Public Services and Utilities) Cumulative Solid Waste Impacts**

1. The proposed project would result in increased amounts of biosolids generated at the WWTP.
2. Findings
  - a. The potential impact is less than significant and does not require mitigation.
  - b. Facts and Reasoning that Support Finding. The potential impact is less than significant because disposal of biosolids are expected to continue to be landfilled and would not exceed the permitted capacity of a landfill disposal site. Biosolids are expected to continue to be beneficially land applied and the quantities generated at the Tracy WWTP would not exceed the capacity of local landfill disposal sites. Because the impact is already less than significant, no additional mitigation is necessary or proposed.

## VI. FINDINGS REGARDING POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

The following findings are made with respect to potentially significant environmental effects analyzed in the Final EIR.

The EIR identified the following potentially significant impacts on the environment that are deemed to have less-than-significant impacts after the application of appropriate mitigation measures. These impacts are:

### Health and Safety Hazards from Construction;

- Access Limitations/Roadway Damage;
- Construction Noise Impacts;
- Operational Noise Impacts Associated with Pump Equipment;
- Construction Air Pollutant Emissions;
- Near-Field Temperature Increases;
- Construction Water Quality Impacts;
- Seismic Hazards;
- Liquefaction;
- Expansive Soils;
- Erosion;
- Biological Resources;
- Undiscovered Cultural Resources
- Damage to Existing Infrastructure
- Increased Demand for Special Fire Protection

The City Council finds, pursuant to the Public Resources Code Section 21081 and Sections 15091-15092 of the CEQA Guidelines, that changes or alterations have been required in or incorporated into the proposed project that avoid or lessen the potentially significant impacts identified in the EIR to levels below the thresholds of significance identified in the EIR.

**A. Impact 4.2.1: Construction activities could result in potential hazards to construction workers both within the plant property and outside the plant, along the route of the outfall pipeline. This impact could be potentially significant.**

1. Potential Impacts. The potential health and safety hazards from construction impacts of the Project are discussed in the Draft EIR at pages 4.2-7 and 4.2-8.
2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.2.1, which will comply with the following requirements:

**MM 4.2.1** Prior to construction, coordination with property owners and regulators will confirm the presence of contaminants in the vicinity of the construction areas. If necessary, the

location of structures to be constructed will either be moved, e.g., the pipeline will be rerouted, or protection of worker health and safety would be maintained through adherence to state and federal occupational health and safety and hazardous waste standards. If hazardous materials are unexpectedly encountered during construction, work will be halted until regulatory agencies have been notified and permission has been obtained to proceed with construction (unless prior procedures have been developed during the design process and agreed to by regulatory agencies ahead of time). In any case, if hazardous materials are encountered adequate personal protective equipment will be used to protect worker health and safety and an appropriate disposal location will be identified for the contaminated soil.

*Timing/Implementation: Prior to construction and, if necessary, during project construction.*

*Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services.*

3. Findings

- a. Effect of Mitigation. The potential impact of health and safety hazards from construction is less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.2.1, discussed at page 4.2-9 of the Draft EIR will minimize the impacts of the project on health and safety hazards from construction to a less than significant level to ensure potential contamination sites in the project area are addressed to appropriate standards.
- c. Any remaining impacts will be less than significant.

**B. Impact 4.3.1: Construction activities and the use of heavy equipment associated with pipeline construction could result in damage to adjacent roadways as well as temporarily obstruct access for area residents. This would be a significant impact.**

- 1. Potential Impacts. The potential access limitation/roadway damage impacts of the project are discussed in the Draft EIR at pages 4.3-7 and 4.3-8.

2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.3.1a, MM 4.3.1b, MM 4.3.1c and MM 4.3.1d, which will comply with the following requirements:

**MM 4.3.1a** The City shall ensure that area roadways damaged by the project are returned to pre-project conditions.

*Timing/Implementation:* Prior to commencement of construction, and following completion of construction.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, San Joaquin Department of Public Works.

**MM 4.3.1b** The construction contractor shall notify, as appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, and San Joaquin County Public Works Department, Road Maintenance Division about the schedule for project construction as soon as project approvals are received. The purpose of this notification will be to postpone any planned roadway resurfacing and/or improvement projects in the project area and coordinate such improvements projects with project construction schedule.

*Timing/Implementation:* Following project approval.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, San Joaquin Department of Public Works.

**MM 4.3.1c** The construction traffic control plan shall include appropriate measures for traffic control such as methods for signage, partial lane closures, and restrictions on commute-hour construction. As appropriate, the City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works or San Joaquin County Public Works Department, Road Maintenance Division, will ensure access for residences along Arbor Avenue, MacArthur Drive and Delta Avenue is maintained during construction activities. The City of Tracy

Department of Public Works or San Joaquin County Public Works Department, Road Maintenance Division shall provide noticing to the City of Tracy Police Department, San Joaquin County Sheriff Department and the Tracy Fire Department.

*Timing/Implementation:* *Prior to commencement of construction.*

*Enforcement/Monitoring:* *City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, San Joaquin Department of Public Works.*

**MM 4.3.1d** The construction contractor shall repair any project-related roadway damage, including new overlays on affected roadways.

*Timing/Implementation:* *Prior to commencement of construction.*

*Enforcement/Monitoring:* *City of Tracy Department of Development and Engineering Services, San Joaquin Department of Public Works.*

**3. Findings**

- a. Effect of Mitigation. The potential impact of access limitations/roadway damage is less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.3.1a, MM 4.3.1b, MM 4.3.1c and MM 4.3.1d discussed at page 4.3-7 and 4.3-8 of the Draft EIR will minimize the impacts of the project access limitations and roadway damage to a less than significant level by ensuring any roadway damage from project construction is fixed and that adequate access is maintained during construction.
- c. Any remaining impacts will be less than significant.

C. **Impact 4.4.1: During the construction phases of the project, including the new outfall pipeline, noise from construction activities would add to the noise environment in the immediate project vicinity. This impact is considered potentially significant.**

1. Potential Impacts. The construction noise impacts of the project are discussed in the Draft EIR at page 4.4-7.
2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.4.1, which will comply with the following requirements:

**MM 4.4.1** Where construction activities would occur within close proximity to noise-sensitive receptors, those activities should adhere to the requirements of the Tracy Municipal Code and San Joaquin County with respect to hours of operation, muffling of internal combustion engines, and other factors which affect construction noise generation and its effects on noise-sensitive land uses.

*Timing/Implementation: Prior to approval of final improvement plans.*

*Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, San Joaquin County Planning/Community Development.*

3. Findings

- a. Effect of Mitigation. The potential impact of construction noise is less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.4.1, discussed at page 4.4-7of the Draft EIR will minimize the impacts of construction noise to a less than significant level by restricting the hours of operation and the extent of noise sources during construction activities.
- c. Any remaining impacts will be less than significant.

**D. Impact 4.4.2: Noise generated by mechanical equipment (pumps) located along the outfall pipeline could result in noise levels which exceed the San Joaquin County noise policies at residences located near such equipment. Therefore, this is considered a potentially significant impact.**

1. Potential Impacts. The operational noise impacts of the project associated with pump equipment are discussed in the Draft EIR at page 4.4-7.
2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.4.2, which will comply with the following requirements:

**MM 4.4.2** All pumps and related equipment which is to be located along the new outfall pipeline shall be enclosed or located far enough from existing noise sensitive areas so as to result in noise levels below the County noise standards at the outdoor activity areas of the receiving land uses.

*Timing/Implementation:* Prior to approval of final engineering drawings.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works, San Joaquin County Planning/Community Development.

3. Findings

- a. Effect of Mitigation. The potential impact of operational noise associated with pump equipment is less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.4.2, discussed at page 4.4-8 of the Draft EIR will minimize the impacts of construction noise to a less than significant level by ensuring that County noise standards are met.
- c. Any remaining impacts will be less than significant.

**E. Impact 4.5.1: Construction of the project may result in increased emissions of PM<sub>10</sub> and other criteria pollutants. This is considered a potentially significant impact.**

1. Potential Impacts. The impact of increased emissions of PM<sub>10</sub> and other criteria pollutants associated with the project are discussed in the Draft EIR at page 4.5-10.

2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.5.1, which will comply with the following requirements:

MM 4.5.1 During construction, various measures will be taken to control fugitive dust to minimize PM<sub>10</sub> emissions and to reduce vehicle emissions. These measures include the following:

- Construction vehicles will use paved roads to access the construction sites when possible.
- Limit vehicle speeds to 10 mph on unpaved roads.
- Enclose, cover, or water excavated soil twice daily.
- Stockpiles of excavated soil shall be covered at all times when the stockpile is not in use. The covers shall be secured. If the stockpiles are such a size that cannot be feasibly covered, stockpiles shall be routinely watered.
- Excavation activities shall be reduced or halted during high winds (e.g., that is when surface wind speeds exceed 20 miles per hour).
- Replant vegetation in disturbed areas following the completion of grading and/or construction activities.
- Minimize vehicle idling time to 10 minutes.

*Timing/Implementation:* The mitigation measures will be implemented concurrently during all phases of project construction.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

3. Findings

- a. Effect of Mitigation. The potential impact of construction emissions is less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.5.1, discussed at pages 4.5-10 and 4.5-11 of the Draft EIR will minimize the impacts of construction air quality emissions to a less than significant level by requiring construction emission controls.
- c. Any remaining impacts will be less than significant.

**F. Impact 4.6.1: Discharge from the proposed outfall diffuser may result, for limited periods of time, in temperature increases within receiving waters that are biologically significant (as indicated, for example, by violation of the California Thermal Plan and the presence of species that are adversely affected by the temperature increase). Although such increases would be minimal in nature (a few hours during June and September), this is considered a potentially significant impact.**

1. Potential Impacts. The impact of increased temperature in receiving waters associated with the project is discussed in the Draft EIR at pages 4.6-38 and 4.6-39 and in the response to comments at pages 2-41 to 2-48.

4. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.6.1, which will comply with the following requirements:

**MM 4.6.1** To ensure that the project will not result in any increase in temperature that would reduce the number, or restrict the range of an endangered, rare or threatened fish species (as indicated, for example, by violation of the California Thermal Plan and the presence of aquatic species that are sensitive to such an increase), the City of Tracy shall commit to the following:

- (1) Engage in consultation under the federal and California Endangered Species Acts;
- (2) Conduct four years of intensive monitoring of thermal impacts in the vicinity of the City's discharge to determine the thermal impacts, if any, associated with the proposed project;
- (3) Develop a reasonable range of mitigation measures that will ensure that the project will not reduce the number, or restrict the range, of an endangered, rare, or threatened fish species; these measures include, but are not limited to:
  - Mechanical cooling with cooling tower onsite at WWTP;
  - Mechanical cooling with tower and chillers (onsite at WWTP);
  - Passive cooling in pond/wetland (onsite adjacent to WWTP);

- Utilize effluent on dedicated lands – seasonal irrigation (onsite adjacent to WWTP);
  - Store/utilize recycled water for us in Spring, Summer, and Fall (storage onsite adjacent to WWTP; irrigation offsite);
  - Baseline project – new outfall without effluent cooling project;
- (4) Upon completion of that monitoring, and absent the implementation of alternative mitigation measures resulting from consultation under the federal and the California Endangered Species Acts, the City will implement sufficient mitigation measures to ensure that the project will not reduce the number, or restrict the range, of an endangered, rare, or threatened fish species.

*Timing/Implementation: Prior to commencing construction in Old River*

*Enforcement/Monitoring: National Marine Fisheries Service, U.S. Fish and Wildlife Service, Army Corps of Engineers, City of Tracy Department of Public Works, and the California Department of Fish and Game.*

5. Findings

- a. Effect of Mitigation. The potential impact of temperature increase is less than significant.
- b. Facts and Reasoning that Support Finding. It is unlikely that any technical violations of the Thermal Plan will have biological significance. As indicated in Table 2-11 of the Master Response of the Final EIR, June and September are the only months in which the proposed project could result in temperature increases that are biologically significant. However, in both months, the projected increases in water temperature are likely to occur during that part of the month when species that could be affected by the temperature change (*e.g.*, adult Chinook salmon) are *not* present. Moreover, in September, the receiving water's temperature exceeds the tolerance of such species even without the proposed

project. Consequently, adult Chinook salmon may already avoid the area during early September.

Although it is unlikely that any increase in temperature associated with the project will have biological significance, mitigation measure MM 4.6.1, will minimize the impacts of temperature increases to a less than significant level by requiring Section 7 consultation with NMFS and the USFWS, as well as a Fish Rescue Plan. MM 4.6.1 will ensure that the project does not reduce the number, or restrict the range of an endangered, rare or threatened fish species.

c. Any remaining impacts will be less than significant.

**G. Impact 4.6.2 Construction of the project could result in temporary impacts to water quality. This would be a potentially significant impact.**

6. Potential Impacts. The potential for construction to impact water quality is discussed in the Draft EIR at page 4.6-47.

7. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.6.2 which will comply with the following requirements:

**MM 4.6.2** Construction of the project will require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to satisfy federal and state regulatory requirements. The SWPPP would include a range of measures and Best Management Practices (BMPs) to minimize potential for stormwater runoff and accidental releases into surface waters during construction. Elements of the SWPPP may include, but are not limited to, the following:

- BMPs for erosion control such as grading management techniques, drainage ditches, straw bales, gravel filter berms, dikes, filtering devices, or silt fences, or netting, as appropriate;
- Use of silt curtains in Old River prior to beginning construction activities;
- An environmental training program for all field personnel to communicate environmental concerns and appropriate work practices, including spill prevention and response measures;
- Identification of areas for refueling and vehicle maintenance activities and hazardous materials storage away from sensitive areas.

*Timing/Implementation:* The SWPPP must be completed prior to beginning construction. Other measures must be implemented prior to beginning construction or during construction as appropriate.

*Enforcement/Monitoring:* Central Valley Regional Water Quality Control Board, City of Tracy Department of Development and Engineering Services.

**8. Findings**

- a. Effect of Mitigation. Construction impacts to water quality are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.6.2 discussed at page 4.6-48 of the Draft EIR will minimize construction impacts on water quality to a less than significant level by ensuring that a Storm Water Pollution Prevention Plan is prepared that includes a range of measures and Best Management Practices to minimize potential for stormwater runoff and accidental releases into surface waters during construction.
- c. Any remaining impacts will be less than significant.

**F. Impact 4.7.1: Development of the project may expose WWTP facilities and buried wastewater conveyance infrastructure to hazards associated with seismic events. This is considered a potentially significant impact.**

- 1. Potential Impacts. The potential for the project to be exposed to hazards associated with seismic events are discussed in the Draft EIR at page 4.7-7.
- 2. Mitigation Measure. The project will incorporate Mitigation Measures MM 4.7.1a and MM 4.7.1b which will comply with the following requirements:
  - MM 4.7.1a The City shall design all facilities in accordance with seismic design criteria of the most recent edition of the Uniform Building Code (UBC) for Seismic Zone 3. This shall be reflected in project improvement plans.

*Timing/Implementation:* Prior to approval of final improvement plans.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, City of Tracy Department of Public Works.

**MM 4.7.1b** The City shall retain a qualified geologist to prepare a geotechnical and soil engineering study for the project site identifying potential seismic hazards. The study shall include design standards for infrastructure facilities to minimize damage associated with liquefaction. The recommendations of the study shall be incorporated into plans.

*Timing/Implementation:* Prior to approval of final engineering drawings.

*Enforcement/Monitoring:* City of Tracy Department of Public Works.

**3. Findings**

- a. Effect of Mitigation. The potential seismic hazard impacts are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.7.1a and MM 4.7.1b, discussed at pages 4.7-7 and 4.7-8 of the Draft EIR will minimize seismic hazard impacts a less than significant level by ensuring that the facilities would be designed to withstand seismic hazards.
- c. Any remaining impacts will be less than significant.

**G. Impact 4.7.2: Project facilities could be exposed to potential liquefaction if an event were to occur in the vicinity of the project. This is considered a potentially significant impact.**

- 1. Potential Impacts. The potential for the project to be exposed to liquefaction are discussed in the Draft EIR at page 4.7-7.

2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.7.2 which will comply with the following requirements:

**MM 4.7.2** In accordance with the California Building Code (Title 24, Part 2) Section 1804A.3 and A.5, liquefaction and seismic settlement potential shall be addressed in the design level geotechnical engineering investigations. Facilities shall be designed to withstand expected forces associated with seismic events. These design features shall be incorporated in project improvement plans.

*Timing/Implementation:* Prior to the issuance of building permits.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

3. Findings

- a. Effect of Mitigation. The potential liquefaction impacts are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.7.2, discussed at page 4.7-8 of the Draft EIR will minimize liquefaction impacts to a less than significant level by ensuring that facilities are designed to handle potential liquefaction impacts.
- c. Any remaining impacts will be less than significant.

**H. Impact 4.7.3: The proposed project may be subject to geologic hazards associated with expansive soils. This is considered a significant impact.**

1. Potential Impacts. The potential for the project to be exposed to expansive soils is discussed in the Draft EIR at page 4.7-9.
2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.7.3 which will comply with the following requirements:

**MM 4.7.3** Design level geotechnical investigations shall be performed to characterize soil conditions at or near each planned facility or structure. The findings of these investigations shall be incorporated into plans. Mitigation may include, but is not limited to the following measures:

- Expansive soils can be excavated and replaced with non-expansive materials. The required depth of excavation shall be specified by a registered civil engineer based on actual soil conditions;
- Expansive soils may be treated in place by mixing them with lime. Lime-treatment alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive; and/or,
- Implement alternative engineering practices considered appropriate by the City of Tracy Development and Engineering Services Department to mitigate expansive soil conditions.

*Timing/Implementation: Prior to grading activities.*

*Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services.*

3. Findings

- a. Effect of Mitigation. The potential expansive soils impacts are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.7.3, discussed at page 4.7-9 of the Draft EIR will minimize expansive soils impacts to a less than significant level by identifying and treated expansive soils appropriately.
- c. Any remaining impacts will be less than significant.

**I. Impact 4.7.4: Grading and trenching activities associated with project construction may expose the soil to wind and water erosion. This is considered a significant impact.**

1. Potential Impacts. The potential for the project to expose soils to erosion are discussed in the Draft EIR at pages 4.7-9 and 4.7-10.
2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.7.4 which will comply with the following requirements:

MM 4.7.4 Prior to grading activities, an erosion control plan that indicates proper control of siltation, sedimentation and other pollutants through the use of Best Management Practices (BMPs) shall be prepared and submitted to the City of Tracy Development and Engineering Services Department. The plan shall be incorporated into the project improvement plans and construction contracts. BMPs may include, but are not limited to, the following:

- a) Grading operations shall be targeted for the dry months of the year. If project construction occurs during rainy weather, sediment traps, barriers, covers or other methods approved by the City shall be used to reduce erosion.
- b) Excavated materials shall not be deposited or stored where the material could be washed away by stormwater runoff.

*Timing/Implementation:* Prior to grading activities.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

3. Findings

- a. Effect of Mitigation. The potential erosion impacts are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.7.4, discussed at page 4.7-10 of the Draft EIR will minimize erosion impacts to a less than significant level by requiring erosion control measures to be in place.
- c. Any remaining impacts will be less than significant.

L. **Impact 4.8.1 Development of the proposed project may temporarily affect upland habitat for the northwestern pond turtle. This impact is considered potentially significant.**

- 1. Potential Impacts. The potential for the project to affect upland habitat for northwestern pond turtle discussed in the Draft EIR at page 4.8-21.
- 2. Mitigation Measure. The project will incorporate Mitigation Measures MM 4.8.1a, 4.8.1b and MM 4.8.1c which will comply with the following requirements:

**MM 4.8.1a** To avoid disturbance of remaining habitat for pond turtle, the location of equipment staging areas for all microtunnelling activities shall be situated within areas that are already paved, tilled, or otherwise disturbed.

*Timing/Implementation:* Prior to construction activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services and California Department of Fish and Game

**MM4.8.1b** A focused survey for northwestern pond turtle shall be conducted by a qualified biologist prior to the onset of construction activities to determine presence or absence of these species. The surveys shall include all staging areas for microtunneling activities and areas along aquatic habitats that will be modified during construction. If construction is planned after April 1<sup>st</sup>, this survey shall include looking for turtle nests within the construction area. If turtles are found within the proposed construction area, the individuals shall be moved out of the construction site under consultation with California Department of Fish and Game. A qualified biological monitor shall be present during construction activities to ensure no turtles are harmed during construction.

*Timing/Implementation:* Prior to construction activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services and California Department of Fish and Game

**MM4.8.1c** Construction shall be avoided when adults and hatchlings are overwintering (October-February), due to the likelihood of turtle adults and juveniles being present in upland habitats. If upland construction activities are scheduled in winter, a qualified biological monitor shall be present during construction activities.

*Timing/Implementation:* Prior to construction activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services and California Department of Fish and Game.

3. Findings

- a. Effect of Mitigation. The potential impacts to northwestern pond turtle are less than significant.
- d. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.8.1a, 4.8.1b and MM 4.8.1c, discussed at page 4.8-21 and 4.8-22 of the Draft EIR will minimize impacts to northwestern pond turtle to a less than significant level by locating staging areas on previously disturbed lands, conducting a focused survey for the species, scheduling construction to avoid hatchlings and adults (October – February), and potential relocation of species to ensure that individuals are not killed as a result of construction activities.
- e. Any remaining impacts will be less than significant.

**M. Impact 4.8.2 Disturbance of nesting raptors and migratory birds, including Swainson's Hawk. Construction may occur within close proximity to nesting raptors. This impact would be considered potentially significant.**

- 1. Potential Impacts. The potential for the project to disturb nesting raptors and migratory birds, including Swainson’s Hawk, is discussed in the Draft EIR at pages 4.8-22 and 4.8-23.
- 2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.8.2 which will comply with the following requirements:

**MM 4.8.2** If construction is proposed during breeding season (February-August), a focused survey for migratory bird nests shall be conducted within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests on the site. If active nests are found, California Department of Fish and Game shall be notified and no construction activities shall take place within 500 feet of the nest until the young have fledged as well as other measures deemed necessary by California Department of Fish and Game. If no active nests are found during the focused survey, no further mitigation will be required.

*Timing/Implementation:* Prior to construction activities.

*Enforcement/Monitoring: City of Tracy Development and Engineering Services and California Department of Fish and Game*

3. Findings

- f. Effect of Mitigation. The potential impacts to nesting raptors and migratory birds are less than significant.
- g. Facts and Reasoning that Support Finding. Mitigation Measure 4.8.2, discussed at page 4.8-23 of the Draft EIR will minimize impacts on nesting raptors and migratory birds to a less than significant level by ensuring that a focused survey is conducted for migratory bird nests 30 days prior to beginning construction. If active nests are found, CDGF shall be notified and construction shall be prohibited within 500 feet of the newt until the young have fledged in order to avoid nest abandonment.
- h. Any remaining impacts will be less than significant.

**N. Impact 4.8.3 Disturbance resulting from construction may occur within close proximity to nesting Western burrowing owls. This impact would be considered potentially significant.**

- 1. Potential Impacts. The potential for the project to disturb nesting Western burrowing owls is discussed in the Draft EIR at pages 4.9-10.
- 2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.8.3a and MM 4.8.3b which will comply with the following requirements:

**MM 4.8.3a** If construction is proposed during the breeding season (February-August), a focused survey for burrowing owls shall be conducted in accordance with California Department of Fish and Game protocol within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests. If no active nests are found, no further mitigation is required.

*Timing/Implementation: Prior to construction activities.*

*Enforcement/Monitoring: City of Tracy Development and Engineering Services and California Department of Fish and Game.*

**MM 4.8.3b** If active nests are found, consultation with California Department of Fish and Game shall be required to determine an appropriate level of avoidance and/ or mitigation. At a minimum, occupied burrows shall not be disturbed during the nesting season (February 1 through August 21) unless a qualified biologist approved by California Department of Fish and Game verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. No construction may take place within 500 feet of active burrows and any burrows to be removed shall be removed during the non-breeding season. Mitigation measures that may be required include preservation in perpetuity of occupied burrows along with a minimum of 6.5 acres of adjacent foraging habitat, or relocation to another suitable preservation area and creation of new burrows and foraging habitat within the preservation area.

*Timing/Implementation:* Prior to construction activities.

*Enforcement/Monitoring:* City of Tracy Development and Engineering Services and the California Department of Fish and Game.

4. Findings

- a. Effect of Mitigation. The potential impacts to western burrowing owl are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.8.3a and MM 4.8.3b, discussed at page 4.8-23 and 4.8-24 of the Draft EIR will minimize impacts to western burrowing owl to a less than significant level by ensuring that a focused survey is conducted if construction is proposed during the breeding season. If active nests are found, consultation with CDFG shall be required to determine an appropriate level of avoidance and/or mitigation to avoid loss of the species.
- c. Any remaining impacts will be less than significant.

**O. Impact 4.8.4 Development of the proposed project could result in temporary construction-related and long-term operational impacts to special-status fish species. This would be a potentially significant impact.**

1. Potential Impacts. The potential for the project to result in temporary construction-related and long-term operational impacts is discussed in the Draft EIR at page 4.8-24 and 4.8-25.
2. Mitigation Measure. Measures necessary to address potential long-term thermal impacts to fish species that could occur as a result of this project are discussed above in Mitigation Measure MM 4.6.1. In addition, the project will incorporate Mitigation Measures MM 4.8.4a and MM 4.8.4b which will comply with the following requirements:

**MM 4.8.4a** A Fish Rescue Plan shall be prepared that details measures to avoid take of fish during construction of the cofferdam and pumping of water out of the cofferdam back into Old River. To ensure compliance and implementation of the plan, a fisheries biologist shall be present during construction and pumping (dewatering) activities.

*Timing/Implementation:* Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during cofferdam dewatering.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game.

**MM 4.8.4b** Section 7 consultation with the NMFS and USFWS shall be required in conjunction with Corps Section 10 Rivers and Harbors Act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to listed and special-status fish species. Consultation with California Department of Fish and Game would also be required to comply with the California Endangered Species Act. As part of the consultation process, a biological assessment shall be prepared by a fisheries biologist. The biological assessment shall evaluate final design of the cofferdam and clarifying method for water returned into Old River and in-

river construction activity. A Mitigation Plan shall be prepared that includes measures to avoid or mitigate short-term construction-related impacts. At a minimum, the following mitigation measures shall be incorporated into the mitigation plan:

- Turbidity and suspended sediment levels in water returned to Old River shall not exceed more than 10% above ambient levels in Old River.
- Prior to any construction activities within Old River, silt curtains shall be put in place around the work area.
- Construction outside of the cofferdam shall occur between June 1 and September 30 (or period requested by the NMFS) to avoid the seasonal period in which juvenile or adult migrating salmonids are present in Old River and the lower San Joaquin River. Seasonal periods (fish windows) and other constraints on dredging and construction activity within the Old River channel will be subject to Section 7 consultation with NMFS and USFWS.
- Requirements and limits on construction and operational impacts (e.g., including specific discharge temperature limits) required to protect listed fish species may be contained in a Biological Opinion issued under Section 7 of the Endangered Species Act, as conditions of the Corps permit, and/or as conditions imposed under the NPDES permit issued by the Regional Water Quality Control Board.

*Timing/Implementation: Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during cofferdam dewatering.*

*Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Game*

3. Findings

- a. Effect of Mitigation. The potential impacts to special status fish species are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.8.4a and MM 4.8.4b, discussed at page 4.8-25 through 4.8-27 of the Draft EIR will minimize impacts to special status fish species to a less than significant level by ensuring that a fish rescue plan is prepared and a Section 7 consultation with the NMFS and USFWS is required in conjunction with Corps Section 10 Rivers and Harbors Act and CWA Section 404 permitting to determine appropriate measures to avoid impacts to listed and special status fish species. A Mitigation Plan shall be prepared that includes measures to avoid or mitigate short-term construction-related impacts. In addition, MM 4.6.1 would mitigate operational impacts (thermal) of the project on special status fish species.
- c. Any remaining impacts will be less than significant.

**P. Impact 4.8.5 Construction activities could result in discharge of dredged material into jurisdictional waters of the U.S. Because jurisdictional waters of the U.S. are regulated under Sections 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, these impacts would be considered potentially significant.**

- 1. Potential Impacts. The potential for the project to result in discharge of dredged material into jurisdictional waters of the U.S. is discussed in the Draft EIR at page 4.8-27 and 4.8-28.
- 2. Mitigation Measure. The project will incorporate Mitigation Measures MM 4.8.5a, MM 4.8.5b and MM 4.8.5c which will comply with the following requirements:

**MM4.8.5a** A jurisdictional delineation shall be conducted for the project area. The Corps shall be consulted to verify agreement with the results of the determination.

*Timing/Implementation: Prior to the issuance of permits for any work within Old River.*

*Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, U.S. Army Corps of Engineers.*

**MM4.8.5b** If there will be discharge into jurisdictional waters of the U.S., the appropriate Section 10 and 404 permit needs to be obtained for proposed work within the waters. Construction work within Old River and placement of the new pipeline and diffuser will require permits under both CWA Section 404 and Rivers and Harbors Act Section 10. Water Quality certification or waiver also will be required for this work. Because Old River provides habitat for special-status fish species, it will be necessary to determine appropriate work windows and construction measures to avoid impacts to special-status fish as discussed in more detail in the section on special-status fish species (See MM 4.8.4b).

*Timing/Implementation:* Prior to the issuance of permits for any work within Old River. The fish rescue will be performed during cofferdam dewatering.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services, U.S. Army Corps of Engineers; National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department Of Fish and Game; and the Regional Water Quality Control Board.

**MM 4.8.5c** Prior to any work within Old River or adjacent to riparian habitat along Paradise Cut, the California Department of Fish and Game shall be contacted to determine whether or not a Streambed Alteration Agreement is required, pursuant to Section 1600 of the California Fish and Game Code. If required, the City shall coordinate with California Department of Fish and Game in developing appropriate mitigation, and shall abide by the conditions of any executed permits. In either event, the City shall adopt a riparian brush rabbit protection program (in consultation with California Department of Fish and Game and U.S. Fish and Wildlife Service) for construction activities in the land area between Paradise Cut and Old River that will include the following protection measures:

- All ground disturbance and construction activities shall maintain a 300-foot buffer from the outer edge of the dripline of riparian vegetation, as set forth in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan.
- Temporary fencing to prohibit rabbits from entering the construction area shall be placed along the edge of the riparian vegetation and removed after the completion of construction activities.
- A qualified biologist shall be present during construction activities to ensure that riparian brush rabbits are not harmed by construction.
- Construction activities shall be scheduled as advised by California Department of Fish and Game and U.S. Fish and Wildlife Service.
- Construction activities shall avoid riparian zones. The "riparian zone" within the context of this document refers to areas immediately adjacent to Old River, Tom Paine Slough, and Paradise Cut that are dominated by hydrophytic vegetation such as cottonwood, willow, California black walnut, and shrub/vine species such as California wild grape, button-willow, sandbar willow, and Himalyan blackberry. Riparian vegetation is within the zone influenced by subsurface moisture from the adjacent waterbody and generally shows an abrupt vegetative break between hydrophytic and upland plant species.

*Timing/Implementation: Prior to the commencement of any construction activities between Paradise Cut and Old River.*

*Enforcement/Monitoring: City of Tracy Department of Development and Engineering Services, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service.*

3. Findings

- a. Effect of Mitigation. The potential impacts to jurisdictional waters of the U.S. are less than significant.

- b. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.8.5a, MM 4.8.5b and MM 4.8.5c, discussed at page 4.8-27 and 4.8-28 of the Draft EIR will minimize impacts to jurisdictional waters of the U.S. to a less than significant level by ensuring that a jurisdictional delineation be conducted for the project area. If there will be discharge into jurisdictional waters of the U.S., the appropriate Section 10 and 404 permit needs to be obtained for proposed work within the waters. In addition, prior to any work in Old River, CDFG should be contacted to determine whether or not a Streambed Alteration Agreement is required pursuant to Section 1600 of the California Fish and Game Code. MM 4.8.5c was modified based on CDFG concerns regarding the Draft EIR to address the brush rabbit and provides mitigation consistent with the San Joaquin HCP.
- c. Any remaining impacts will be less than significant.

**Q. Impact 4.9.1: Artifacts, objects and locations associated with an event or person of California or American history or prehistory that constitute resources of importance under CEQA and are eligible for the California Register or National Register may exist within the project area of potential effect. Destruction or disturbance of such undiscovered resources, whether planned or inadvertent, constitutes a significant impact.**

1. Potential Impacts. The potential for the project to disturb unknown cultural resources is discussed in the Draft EIR at page 4.9-10.
2. Mitigation Measure. The project will incorporate Mitigation Measures MM 4.9.1a and MM 4.9.1b which will comply with the following requirements:

**MM 4.9.1a** If any prehistoric or historic artifacts, or other indications of archaeological resources are found once the project is underway, all work in the immediate vicinity must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology, as appropriate, shall be consulted to evaluate the finds and recommend appropriate mitigation measures.

**MM 4.9.1b** If human remains are discovered, all work must stop in the immediate vicinity of the find, and the County Coroner must be notified, according to Section 7050.5 of California's Health and Safety Code. If the remains are Native American, the coroner will notify the Native American Heritage Commission, which in turn will inform

a most likely descendant. The descendant will then recommend to the landowner appropriate disposition of the remains and any grave goods.

3. Findings

- a. Effect of Mitigation. The potential impacts to undiscovered cultural resources are less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.9.1a and MM 4.9.1b, discussed at page 4.9-10 and 4.9-11 of the Draft EIR will minimize undiscovered cultural resource impacts to a less than significant level by ensuring that any discovered resources are handled and evaluated appropriately.
- c. Any remaining impacts will be less than significant.

**R. Impact 4.10.1: Installation of new wastewater conveyance infrastructure and a new outfall pipeline to the Old River could potentially damage existing infrastructure. This would be considered a potentially significant impact.**

1. Potential Impacts. The potential for the project to damage existing infrastructure is discussed in the Draft EIR at page 4.10-3.
2. Mitigation Measure. The project will incorporate Mitigation Measures MM 4.10.1a, MM 4.10.1b and MM 4.10.1c which will comply with the following requirements:

**MM 4.10.1a** The City of Tracy will consult with PG&E, Pacific Bell, and any other known service providers in the area to determine whether construction will impact utilities or occur in proximity to known infrastructure. WWTP development plans shall be reviewed and the recommendations of these agencies shall be incorporated into final development plans.

*Timing/Implementation:*      *During the planning stage of the project.*

*Enforcement/Monitoring:*      *City of Tracy Department of Development and Engineering Services.*

**MM 4.10.1b** The proposed outfall pipeline alignment shall be surveyed by a firm specializing in locating buried infrastructure. This task shall include contacting appropriate utility agencies and companies, reviewing maps, etc.

*Timing/Implementation:* During the design stage of the project.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

**MM 4.10.1c** The cost of any repair or relocation of affected infrastructure that results from construction activities will be assumed by the City of Tracy if the utility has prior title to the property.

*Timing/Implementation:* Prior to approval of final improvement plans.

*Enforcement/Monitoring:* City of Tracy Department of Development and Engineering Services.

3. Findings

- a. Effect of Mitigation. The potential impact of damage to existing infrastructure is less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measures MM 4.10.1a, MM 4.10.1b and MM 4.10.1c, discussed at page 4.10-3 and 4.10-4 of the Draft EIR will minimize damage to existing infrastructure impacts to a less than significant level by ensuring that infrastructure conflicts are identified prior to construction activities.
- c. Any remaining impacts will be less than significant.

S. **Impact 4.10.2: Operation of the WWTP may require special fire protection services associated with hazardous materials. This is considered a potentially significant impact.**

- 1. Potential Impacts. The potential for the project to increase demand for special fire protection is discussed in the Draft EIR at page 4.10-3.
- 2. Mitigation Measure. The project will incorporate Mitigation Measure MM 4.10.2 which will comply with the following requirements:

**MM 4.10.2** The City of Tracy Fire Department shall review plans for the WWTP facilities to determine the if special fire services or facilities are required. These facilities may include special hazardous material equipment, temporary and/or permanent water tanks, and fire breaks. The requirements

of the Fire Department shall be incorporated into project improvement plans.

*Timing/Implementation: Prior to approval of project improvement plans.*

*Enforcement/Monitoring: City of Tracy Fire Department and Department of Development and Engineering Services.*

3. Findings

- a. Effect of Mitigation. The potential impact of damage to existing infrastructure is less than significant.
- b. Facts and Reasoning that Support Finding. Mitigation Measure MM 4.10.2, discussed at page 4.10-8 and 4.10-9 of the Draft EIR will minimize increased demand for special fire protection impacts to a less than significant level by ensuring all needs of the City of Tracy Fire Department are provided. Since release of the Draft EIR the City has modified plans for disinfection and is proposing to maintain the existing use of chlorine gas and sulfur dioxide.
- c. Any remaining impacts will be less than significant.

VI. FINDINGS REGARDING ALTERNATIVES

CEQA Guidelines Section 15126 requires a discussion of a reasonable range of alternatives to the Project or to the location of the Project. However, an EIR need not consider an alternative whose implementation is remote or speculative.

For this project, several alternatives were evaluated. These alternatives are discussed in the Draft EIR in Section 6.0 alternatives to the project and the Final EIR as part of the Master Responses (Item C). The Draft and Final EIRs discussed the following types of alternatives:

- No Project
- Co-Location Alternative
- Dougherty Cut Alternative
- Old River South Alternative
- Sugar Cut Alternative
- Tom Paine Slough Alternative
- Maximum Summertime Reuse of Water (no seasonal storage)
- Maximum Reuse of Recycled Water (with seasonal storage)

**A. No Project Alternative**

As described in the Draft EIR at pages 6-3 through 6-6, the CEQA mandated “No Project Alternative” would consist of continued wastewater treatment from the existing WWTP with no expansion in capacity.

The No Project Alternative is less desirable than the project and is rejected for the following reasons: more intense impacts relative to the proposed project in terms of surface hydrology, groundwater and water quality, geology and soils, and biological resources. While the No Project Alternative would result in more intense impacts in these issue areas, it would not have any benefit of increased wastewater treatment capacity.

This alternative would not meet the project objectives since failure to expand wastewater treatment capacity would inhibit approved and planned development within the WWTP service area. Unless other provisions for wastewater treatment are made (e.g. satellite treatment plants), development within the City of Tracy would be constrained. In addition, the City’s NPDES permit is expiring and the current treatment process would most likely not be acceptable to the RWQCB.

**B. Co-Location Alternative**

As described in the Draft EIR at pages 6-6 through 6-11, the Co-Location Alternative would consist of co-locating a new diffuser outfall adjacent to the existing outfall at Old River. The outfall pipeline would follow the same route as the existing pipeline along Arbor Avenue, MacArthur Drive and Delta Avenue. The Co-Location Alternative would essentially duplicate the existing diffuser and provide additional effluent conveyance and disposal to accommodate increased flows from the WWTP.

The Co-Location Alternative is less desirable than the project and is rejected for the following reasons: This alternative proposes siting a new diffuser at the same location as the existing diffuser instead of separating the two. Old River is shallower at the discharge point of the Co-Location Alternative (i.e. 10 to 19 feet deep during high tide) than at the proposed project outfall location. Because better dilution occurs at the proposed outfall, impacts to surface hydrology would be more intense for the Co-Location Alternative than for the proposed project. Further, there are no environmental benefits of choosing this alternative compared to the proposed project.

**C. Dougherty Cut Alternative**

As described in the Draft EIR at pages 6-12 through 6-17, the Dougherty Cut Alternative would consist of construction of a new pipeline to convey treated effluent to a diffuser located at Dougherty Cut. The new pipeline would be constructed from the north end of the WWTP along Arbor Avenue east to MacArthur Drive, then north on MacArthur Drive to Delta Avenue. From this point, the pipeline would align west through farmland, cross Old River then align north to the outfall location at Dougherty Cut.

The Dougherty Cut Alternative is less desirable than the project and is rejected for the following reasons: This alternative would require the longest pipeline to reach its point of discharge on Dougherty Cut. This would result in more intense impacts than the proposed project relative to air quality and biological resources. This alternative would require more linear feet of pipeline than the proposed project resulting in high construction costs.

#### **D. Old River South Alternative**

As described in the Draft EIR at pages 6-17 through 6-23, the Old River South Alternative would consist of construction of a new outfall diffuser from the north end of the WWTP extending along Arbor Avenue east to MacArthur Drive. The pipeline would align north on MacArthur Drive to Whitehall Road. At Whitehall Road, the pipeline would extend west, cross Tom Paine Slough and continue west through farmland to the outfall location on Old River.

The Old River South Alternative is less desirable than the project and is rejected for the following reasons: The water depth (i.e. 8.5 to 9-feet deep during high tide) at the Old River South Alternative outfall is very shallow and would provide some dilution only during wet weather flow. As a result, surface hydrology impacts at the Old River South Alternative would be more intense than for the proposed project.

#### **E. Sugar Cut Alternative**

As described in the Draft EIR at pages 6-23 through 6-29, the Sugar Cut Alternative would consist of a new pipeline and outfall from the WWTP to an outfall location at Sugar Cut. The pipeline would be constructed from the north end of the WWTP site, follow Arbor Avenue east to MacArthur Drive, then north on MacArthur Drive. From this point it would cross farmland and Tom Paine Slough before terminating at Sugar Cut.

The Sugar Cut Alternative is less desirable than the project and is rejected for the following reasons: The outfall at Sugar Cut has poor dilution because this waterway is a dead-end slough. Without proper dilution, impacts identified relative to water quality would be exacerbated. As a result, surface hydrology impacts at the Sugar Cut Alternative would be more intense than for the proposed project.

#### **F. Tom Paine Slough Alternative**

As described in the Draft EIR at pages 6-29 through 6-35, the Tom Paine Slough Alternative proposes a new pipeline and outfall from the WWTP. The pipeline would be constructed from the north end of the WWTP site, follow Arbor Avenue east to MacArthur Drive, then north on MacArthur Drive. From this point it would cross farmland before terminating at Tom Paine Slough.

The Tom Paine Slough Alternative is less desirable than the project and is rejected for the following reasons: The water depth at the Tom Paine Slough Alternative outfall is very shallow and would provide some dilution only during wet weather flow. As a result, surface hydrology impacts at the Tom Paine Slough Alternative would be more intense than for the proposed project.

### G. Maximum Summertime Reuse of Recycled Water (No Seasonal Storage) Alternative

As described in the Draft EIR at pages 6-35 through 6-43, the Maximum Summertime Reuse of Recycled Water (No Seasonal Storage) Alternative would include fully sized discharge facilities for wintertime peak flows to eliminate discharge in all but the wettest days and months of the year. This alternative would reduce the volume of treated wastewater discharged by about 1,920 million gallons per year – (5,800 acre-feet/year). For comparison purposes, under future conditions, a total of 6,900 million gallons per year are anticipated to be processed for disposal and/or reuse). This alternative was considered as a means of reducing discharges to Old River.

The Maximum Summertime Reuse of Recycled Water (No Seasonal Storage) Alternative is less desirable than the project and is rejected for the following reasons:

- No customers for recycled water are specifically identified at this time. As a result land use impacts are difficult to quantify. However, this alternative would require distribution infrastructure to each individual user. In addition, a new outfall would still be necessary to accommodate discharge when flows are not fully reclaimed (i.e. in the winter, spring and fall months).
- The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative is anticipated to result in more extensive impacts to access based on the extent of infrastructure that would be required to distribute recycled water to customers.
- The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative could disrupt traffic on roadways subject to high traffic volumes (yet to be identified) during construction of recycled water distribution infrastructure. This would result in more intense impacts to traffic during construction than the proposed project.
- Because the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative would include construction of extensive recycled water distribution infrastructure, construction noise would occur for a longer duration and over a larger area than the proposed project.
- Because the Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative includes construction of an extensive recycled water distribution network, construction air quality impacts would most likely be more intense for this alternative.

### H. Maximum Reuse of Recycled Water (with seasonal storage) Alternative

As described in the Draft EIR at pages 6-43 through 6-50, the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would be sized to accommodate 100 percent of the annual volume of recycled water (i.e. 4,980 million gallons [mg] in multiple ponds occupying more than 500 acres) for wintertime peak flows. This would eliminate effluent discharge on all but the wettest days and months of the year. Further, whatever is not used during the summer would be stored during the remainder of the year for reuse in the next summer season. The Maximum Summertime Reuse of Recycled Water (no seasonal storage) Alternative proposes piping recycled wastewater to customers for reclamation and reuse purposes. The Dougherty Cut

Alternative is less desirable than the Project and is rejected for the following reasons: This alternative would require the longest pipeline to reach its point of discharge on Dougherty Cut. This would result in more intense impacts than the proposed project relative to air quality and biological resources.

The Maximum Reuse of Recycled Water (with seasonal storage) Alternative is less desirable than the project and is rejected for the following reasons:

- As no recycled water customers are specifically identified at this time, land use impacts are difficult to quantify. In addition, new storage facilities capable of accommodating 4,980 million gallons (mg) of discharge flows would have to be constructed. These impacts would be more extensive for this alternative than the proposed project, primarily due to construction of the storage facilities. Therefore, this alternative would result in more intense impacts to land use than the proposed project.
- The Maximum Reuse of Recycled Water (with seasonal storage) Alternative is anticipated to result in more intense traffic impacts to access based on the extent of infrastructure required to distribute recycled water to customers as well as the construction of storage facilities to accommodate 100 percent of discharge flows. This alternative would disrupt traffic on area roadways (yet to be identified) during construction of recycled water distribution infrastructure and the storage facilities. Roadways with high traffic volumes may be impacted by construction of recycled water distribution infrastructure and the storage facilities. Therefore, the Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts to traffic than the proposed project.
- The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would include construction of extensive recycled water distribution infrastructure as well as storage facilities capable of accommodating 4,980 mg, construction noise would occur for a longer duration and over a larger area than the proposed project. Pumps would be used in association with the Maximum Reuse of Recycled Water (with seasonal storage) Alternative to convey water to the storage facility and to distribute recycled water to customers. This would result in more intense operational noise impacts than the proposed project.
- Because the Maximum Reuse of Recycled Water (with seasonal storage) Alternative includes construction of an extensive recycled water distribution network, construction air quality impacts would most likely be more intense for this alternative. Pumps would be required to convey recycled water to the storage facilities and to customers. Therefore, operational air quality impact of this alternative may be more intense than the proposed project.
- The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would require construction of new storage facilities covering over 500 acres. Each storage pond would be approximately 30 feet deep. In addition, extensive recycled water distribution infrastructure would also be constructed. While the neither the actual sites of the storage

facilities or the route of the distribution infrastructure have been determined at this point, these facilities could be subject to a variety of geologic and soil impacts. As the Maximum Reuse of Recycled Water (with seasonal storage) Alternative requires construction of both storage facilities and recycled water distribution infrastructure, impacts would be considered more intense than under the proposed project.

- The Maximum Reuse of Recycled Water (with seasonal storage) Alternative requires over 500 acres of storage facilities and extensive distribution infrastructure. Therefore, the impacts to biological resources would be more widespread and potentially more intense than for the proposed project. The proposed project could result in impacts to northwestern/southwestern pond turtle, nesting raptors and migratory birds including Swainson's hawk, Western burrowing owl, special status fish species, and jurisdictional waters of the U.S. The extent of impacts to biological resources could be more intense than for the proposed project although this cannot be fully determined until actual sites and routes for these facilities are identified.
- The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts than those of the proposed project relative to potential to damage existing infrastructure because extensive distribution infrastructure would be constructed to distribute recycled water. In addition, construction of 30-foot deep storage facilities could potentially affect infrastructure as well. The Maximum Reuse of Recycled Water (with seasonal storage) Alternative would result in more intense impacts than those of the proposed project relative to increased demand for electricity due to the added energy demand associated with pumps to convey flows to storage and from storage to recycled water to customers.

Due to the extensive amount of infrastructure required for this alternative, construction costs would be higher than the proposed project.

#### **I. Peak Hour Dry Weather Filtration for Tertiary Treatment (23 MGD) Alternative**

As described in the Draft EIR at pages 6-51 through 6-57, the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 MGD) Alternative would provide filtration for peak hour dry-weather flow. During periods of peak-hour wet weather flow, this alternative would provide partial filtration (i.e. it would accommodate only 23 mgd instead of 30 mgd) during wet weather events.

The Peak Hour Dry Weather Filtration for Tertiary Treatment (23 MGD) Alternative is less desirable than the project and is rejected for the following reasons:

- In the event that flows exceed 23 mgd, the proposed project would be able to provide tertiary treatment for 7 mgd more than the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative. As a result, impacts to surface hydrology are expected to be more intense under the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative than under the proposed project.

- Because the proposed project provides 7 mgd of additional tertiary treatment, cumulative water quality impacts resulting from ammonia, trace metals, pathogens, increased discharge of tertiary effluent, treated effluent on dissolved oxygen, total dissolved solids would be more intense for the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative than for the proposed project. In addition, impacts of the proposed discharge on TOC, pathogens, and trace metals would be more intense for the Peak Hour Dry Weather Filtration for Tertiary Treatment (23 mgd) Alternative compared to the proposed project.

#### **J. Advanced Treatment Alternative**

As described in the Draft EIR at pages 6-57 through 6-637, the Advanced Treatment Alternative would include treatment beyond tertiary-level treatment of effluent prior to discharge. Tertiary treatment refers to secondary treatment followed by filtration and disinfection. Tertiary treatment is not sufficient to remove all contaminants such as all trace organics, all heavy metals and dissolved materials such as salts. Therefore, if treatment standards beyond tertiary levels are required in the future, advanced treatment is available to remove residual contaminants. Advanced treatment would direct filtered effluent through a series of pressure membranes prior to discharge. Microfiltration (MF) followed by reverse osmosis (RO) would provide sufficient treatment for almost complete removal of the constituents of concern, even including TDS.

The Advanced Treatment Alternative is less desirable than the project and is rejected for the following reasons:

- The Advanced Treatment Alternative would result more intense human health/risk of upset impacts than the proposed project. By-products generated from advanced treatment (e.g. salts) are toxic and would require storage and disposal. Therefore, the Advanced Treatment Alternative would increase the amount of toxic materials on the WWTP site potentially resulting in more intense impacts than the proposed alternative.
- Following construction, the advanced treatment facilities could result in greater increases in noise impacts than the proposed project because of the pumps (high pressure membrane processes) required as part of the MF and RO process.
- Operational impacts (emissions, odor, etc.) may be more intense for the Advanced Treatment Alternative than the proposed project due to the addition of MF and RO and the residual brine produced as a by-product of advanced treatment. For instance, operation of reverse osmosis would result in potentially detrimental traffic and circulation, air, noise, geologic, and land use impacts that exceed the proposed project's impacts upon those resources. The number of disposal sites that can accept the highly concentrated brine produced by micro-filtration/reverse osmosis is extremely limited, disposal of the brine will require significant haul distances. Consequently, transport of the brine could result in increased air quality impacts (e.g., PM<sub>10</sub> levels).

- The cost of reverse osmosis is prohibitive. The capital cost for adding reverse osmosis is \$33,500,000, approximately 50% of the cost of the entire proposed project. Moreover, the City found that less costly mitigation measures could significantly reduce the impacts that might otherwise necessitate reverse osmosis. For instance, the City found that changes in the source of its water supply could dramatically reduce the effluent's TDS concentration to a level that would dilute the TDS levels within the receiving waters.
- The Advanced Treatment Alternative would be energy intensive in order to operate MF and RO processes. As a result, the Advanced Treatment Alternative would result in more intense impacts than the proposed project relative to electrical demand and increased loads on existing electrical infrastructure. In addition, the Advanced Treatment Alternative would generate hazardous materials requiring storage and removal that could result in more intense impacts to special fire protection services.

## VIII. STATEMENT OF OVERRIDING CONSIDERATIONS

In determining whether to approve the project, CEQA requires a public agency to balance the benefits of a proposed project against its unavoidable environmental risks. In the case at hand, implementation of the mitigation measures discussed in the EIR/EIS will reduce all but one of the proposed project's significant impacts to a less than significant level. The proposed project's only significant and unavoidable impact is to cumulative surface water quality impacts. For the reasons discussed below, the City Council proposes to approve the project despite one significant and unavoidable adverse impact identified in the EIR

### A. Significant Unavoidable Adverse Impacts

#### 1. Cumulative Impacts on Surface Water Quality (Impact 4.6.3)

The proposed project could, from a worst-case standpoint, contribute to cumulatively significant surface water quality impacts. Although the proposed project will improve surface water quality in general, the proposed project will maintain, or only slightly reduce, the current average concentration of some constituents in the effluent (*i.e.*, copper). Thus, as demonstrated in Table 2-13 of the Responses to Comments in the Final EIR, it is possible for the mass to slightly increase in the receive water. Importantly, for each constituent for which the proposed project may result in an increase in mass, the concentration in the proposed project's effluent is at or below the significance threshold identified by the City. Nonetheless, the City acted conservatively by determining that even though these increases are not individually significant, they may be cumulatively significant (See Table 2-14 of the Master Response in the Final EIR).

#### 2. Cumulative Impacts on Aquatic Species Including Resident and Special-Status Fish Species (Impact 4.8.6)

From a worst case standpoint, the proposed project may contribute to cumulatively significant future impacts on resident and special-status fish species. The likelihood of the proposed project contributing to any cumulatively significant impact upon aquatic species is low, particularly given the limited nature of the proposed project's thermal impacts and the proposed project's

generally beneficial impact upon water quality. Nonetheless, the City acted conservatively and, as described in page 4.8-32 of the Draft EIR, concluded that the project may contribute to cumulatively significant surface water quality impacts that may, in turn, cause a cumulatively significant impact on aquatic resources, including resident and special-status fish species.

## **B. Overriding Considerations**

Having reduced the effects of the proposed project by adopting mitigation measures, and balanced the benefits of the proposed project against its potential unavoidable adverse impacts, the City Council hereby determines that specific overriding economic, legal, social, technological, or other benefits of the proposed project outweigh the potential unavoidable adverse effects on the environment, and that the unavoidable adverse effects are therefore acceptable.

The City must expand the wastewater treatment plant to fulfill its obligations to serve the City's population. The existing wastewater treatment plant was constructed in 1930. To keep pace with the City's population growth, the facility has undergone major expansions in 1947, the mid-1970s, and from 1985-1987.

Since the facility's most recent expansion in 1985-1987, the City's population has continued to grow, necessitating the proposed project's expansion of the wastewater treatment plant from the current capacity of 9.0 mgd to a capacity of 16.0 mgd. The City's population grew by 38 percent from 1980 to 1990, and by an additional 24 percent from 1990 to 2001. The City's population grew by 5.6 percent from April 1, 2000 to July 1, 2001. The City anticipates that this rate of population growth may continue -- and may increase -- as the San Francisco Bay Area continues to lag in providing affordable housing.

The City has considered a range of alternatives to the proposed project. Specifically, the City considered alternatives to: (1) the proposed project's discharge of effluent to Old River; and (2) the proposed project's treatment processes. As discussed below, after considering these alternatives, the City determined that there is no feasible alternative that results in lesser environmental impacts.

- (1) The alternatives to discharge to Old River are neither environmentally desirable nor feasible. The City considered two land application alternatives in its analysis: Maximum Summertime Reuse of Recycled Water (with no seasonal storage); and Maximum Reuse of Recycled Water (with seasonal storage). The City's analysis determined that the construction and operation of discharge to land would result in adverse land use, geologic, and biological impacts that would exceed those of the proposed project. Moreover, at this time, there is insufficient demand for recycled water to support the land application alternatives.
- (2) There are also no feasible alternatives to the proposed project's treatment processes that cause less environmental impacts than the proposed project.

As discussed in Draft EIR Section 6.0, the City considered using an ultra-violet disinfection process as an alternative to chlorination, but found that ultra-violet disinfection is infeasible because it: (a) is less consistent than chlorination in achieving water quality standards (See Response to Comment 2.C in the Final EIR); (b) requires significantly more electricity than the proposed project, resulting in the traffic, air, noise, and land use impacts associated with the generation of such additional electricity; and (3) is not cost effective at this time.

The City also considered incorporating micro-filtration/reverse osmosis into the proposed project's design. However, the City's analysis disclosed that the construction and operation of reverse osmosis would result in potentially detrimental traffic and circulation, air, noise, geologic, and land use impacts that exceed the proposed project's impacts upon those resources. Because the number of disposal sites that can accept the highly concentrated brine produced by micro-filtration/reverse osmosis are extremely limited, disposal of the brine will require significant haul distances. Consequently, transport of the brine could result in increased air quality impacts (e.g., PM<sub>10</sub> levels). In addition, the cost of reverse osmosis is prohibitive. For example, the capital cost for adding reverse osmosis is \$33,500,000, approximately 50 percent of the cost of the entire proposed project. Moreover, the City found that less costly mitigation measures could significantly reduce the impacts that might otherwise necessitate reverse osmosis. For instance, the City found that changes in the source of its water supply could dramatically reduce the effluent's TDS concentration to a level that would dilute the TDS levels within the receiving waters.

For these reasons, the City determined that there are also no feasible alternatives to the proposed project's treatment processes that cause less environmental impacts than the proposed project.

The proposed project's impacts upon water quality are largely beneficial. The proposed project's design incorporates new treatment technologies, including ammonia removal, denitrification, filtration and increased disinfection, such that the proposed project's effluent will be of the same or better quality than: (1) the current effluent (all constituents except nitrate); (2) the water quality standards that apply to *effluent* (all constituents); (3) the water quality standards that apply to *drinking water* (e.g., ammonia); and (4) the quality of the receiving waters (e.g., TDS).

Accordingly, the City finds that the proposed project best serves CEQA's purpose of ensuring the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian. (Pub. Resources Code § 21001[d]). The City acknowledges that although the proposed project's individual impacts upon water quality and aquatic resources are less than significant, the proposed project may contribute to cumulatively significant impacts upon water quality and aquatic resources. (DEIR at pages 1-2, 1-22; Master Response 2.B in the Final EIR).

For these reasons, the City concluded that the proposed project offers the most desirable treatment and disposal option from human health and safety, environmental, and economic perspectives. Based on the foregoing and pursuant to the provisions of Public Resources Code

Section 21081 the City Council finds that the remaining significant and unavoidable impacts of the Tracy Wastewater Treatment Expansion are acceptable in light of the foregoing benefits of the expansion. Such benefits outweigh such significant and unavoidable environmental impacts of the project.

**IX. FINDINGS REGARDING MONITORING/REPORTING OF CEQA MITIGATION MEASURES**

Section 21081.6 of the California Public Resources Code requires the City Council to adopt a monitoring and reporting program regarding changes in the Project or mitigation measures imposed to lessen or avoid significant effects on the environment.

The Mitigation and Monitoring Program, in the form presented to the City Council, is adopted because it effectively fulfills the CEQA mitigation monitoring requirement:

- A. The mitigation measures are specific and, as appropriate, define performance standards to measure compliance under the Program.
- B. The Program has been designed with detailed descriptions of conditions, implementation, verification, a compliance schedule and reporting requirements to insure compliance with the mitigation measures.
- C. Compliance with the Program is itself a requirement of the project.
- D. The Program ensures that the mitigation measures are in place, as appropriate, throughout the life of the project.

02 OCT 16 AM 9:55

SAN JOAQUIN COUNTY

**NOTICE OF DETERMINATION**

BY *Patsara Paulsen*  
DEPUTY

To: \_\_\_ Office of Planning and Research  
1400 Tenth Street, Room 121  
Sacramento, CA 95814

From: City of Tracy, Public  
Works Department  
520 Tracy Boulevard  
Tracy, CA 95376

X San Joaquin County Clerk  
Pacific State Bank, Second Floor  
6 S. El Dorado  
Stockton, CA 95202

Subject: Filing of Notice of Determination in Compliance with Section 21108 or 21152 of the Public Resources Code.

Project Title: Tracy Wastewater Treatment Plant Expansion

State Clearinghouse Number: SCH No. 2000012039

Lead Agency Contact Person: City of Tracy, Steve Bayley, Deputy Director of Public Works, (209) 831-4434.

Project Location: The project site is located within the northern part of the City of Tracy at 3900 Holly Drive, Tracy, San Joaquin County, CA.

Project Description: The existing wastewater treatment plant provides secondary treatment and disinfection before discharging to Old River and has a design flow capacity of 9.0 million gallons per day. Over the next decade, new commercial, industrial and residential development within Tracy is expected to increase the average wastewater flow to the plant from 6.5 to 16.0 million gallons per day. The proposed project will increase plant capacity by installing additional facilities, while simultaneously upgrading the plant in anticipation of more stringent effluent discharge requirements.

This is to advise that the City of Tracy has approved the above described project on October 15, 2002, and has made the following determinations regarding the above described project:

1. The project  WILL  WILL NOT have a significant effect on the environment.
2. An Environmental Impact Report  WAS  WAS NOT prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures  WERE  WERE NOT made a condition of the approval of the project.
4. A statement of Overriding Considerations  WAS  WAS NOT adopted for this project.
5. Findings  WERE  WERE NOT made pursuant to the provisions of CEQA.

This is to certify that the Final EIR, with comments and responses, and record of project approval are available to the general public at the City of Tracy, 520 Tracy Boulevard, Tracy, CA 95376.

*Steven G. Bayley*  
Signature: Steven G. Bayley, Deputy Director of Public Works Date: 10/16/02

11-18-02