Public Draft

CITY OF TURLOCK

Harding Drain Bypass Project EIR

SCH No. 2003062002

July 2004

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TABLE OF CONTENTS

CITY OF TURLOCK HARDING DRAIN BYPASS PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT

EXECUTIVE SUMMARY **ES-1**

CHAPTER 1.0 INTRODUCTION **1-1**
1.1 Purpose and Use of the Environmental Impact Report 1-1
1.2 CEQA EIR Process 1-1
1.3 Assumptions Used in the EIR 1-3
1.4 Terminology Used in the EIR 1-4
1.5 EIR Organization 1-5
1.6 EIR Preparation 1-6

CHAPTER 2.0 PROJECT DESCRIPTION **2-1**
2.1 Project Location 2-1
2.2 Project Background 2-1
2.3 Project Goals and Objectives 2-4
2.4 Project Facilities and Attributes 2-4
2.5 Construction and Operations 2-12
2.6 Permits and Subsequent Agency Approvals 2-16

CHAPTER 3.0 ENVIRONMENTAL ANALYSIS **3-1**
Introduction to the Analysis 3-1

3.1 Water Resources 3.1-1
3.1.1 Setting 3.1-1
3.1.2 Impacts and Mitigation Measures 3.1-11

3.2 Biological Resources 3.2-1
3.2.1 Introduction 3.2-1
3.2.2 Setting 3.2-4
3.2.3 Impacts and Mitigation Measures 3.2-15

3.3 Land Use and Agriculture 3.3-1
3.3.1 Setting 3.3-1
3.3.2 Regulatory Background 3.3-4
3.3.3 Impacts and Mitigation Measures 3.3-7

3.4 Public Services and Utilities 3.4-1
3.4.1 Setting 3.4-1
3.4.2 Impacts and Mitigation Measures 3.4-4

3.5 Cultural Resources 3.5-1
3.5.1 Setting 3.5-1
3.5.2 Impacts and Mitigation Measures 3.5-7

3.6 Air Quality 3.6-1
3.6.1 Setting 3.6-1
3.6.2 Impacts and Mitigation Measures 3.6-10

3.7 Noise 3.7-1
3.7.1 Setting 3.7-1
3.7.2 Impacts and Mitigation Measures 3.7-7

3.8 Transportation and Traffic Circulation 3.8-1
3.8.1 Setting 3.8-1
3.8.2 Impacts and Mitigation Measures 3.8-3

3.9 Geology, Soils, and Seismicity 3.9-1
3.9.1 Setting 3.9-1
3.9.2 Impacts and Mitigation Measures 3.9-10

3.10 Hazardous Materials / Public Health 3.10-1
3.10.1 Setting 3.10-1
3.10.2 Impacts and Mitigation Measures 3.10-9

3.11 Aesthetic and Recreational Resources 3.11-1
3.11.1 Setting 3.11-1
3.11.2 Impacts and Mitigation Measures 3.11-5

CHAPTER 4.0 PROJECT ALTERNATIVES 4-1
4.1 General California Environmental Quality Act Requirements 4-1
4.2 Factors in Selection of Alternatives 4-1
4.3 Alternatives Considered, but Eliminated from Further Consideration 4-2
4.4 Alternatives Analysis 4-3
4.5 No Project Alternative 4-9
4.6 Environmentally Superior Alternative 4-10

CHAPTER 5.0 GROWTH-INDUCING IMPACTS 5-1
5.1 Introduction 5-1

CHAPTER 6.0 CUMULATIVE IMPACTS AND OTHER STATUTORY CONSIDERATIONS 6-1
6.1 Introduction 6-1
6.2 Cumulative Impacts 6-1
6.3 Irreversible Environmental Changes 6-6
6.4 Significant and Unavoidable Environmental Impacts 6-6
6.5 Effects Not Found to be Significant 6-8

CHAPTER 7.0 EIR LIST OF PREPARERS 7-1

CHAPTER 8.0 BIBLIOGRAPHY 8-1

CHAPTER 9.0 ACRONYMS 9-1

APPENDIX A NOTICE OF PREPARATION
APPENDIX B COMMENTS RECEIVED ON NOTICE OF PREPARATION
APPENDIX C RWQCB CEASE AND DESIST ORDER & NPDES PERMIT
APPENDIX D WATER QUALITY DATA FOR THE HARDING DRAIN
APPENDIX E VASCULAR PLANT LIST
APPENDIX F LIST OF SPECIAL STATUS SPECIES
APPENDIX G CONSTRUCTION EMISSION CALCULATIONS

FIGURES

2-1	Regional Map	2-2
2-2	Proposed Pipeline Alignment	2-5
2-3	Aeration Structure and Outfall Footprint	2-8
2-4	Aeration Structure and Outfall Schematic Cross Section	2-9
2-5	Outfall Details	2-10
2-6	Proposed Pump Station Footprint	2-11
3.1-1	Surface Water Features	3.1-3
3.1-2	Groundwater Depths	3.1-5
3.2-1	Site Photographs	3.2-8
3.3-1	Farmland Designations	3.3-3
3.7-1	Effects of Noise on People	3.7-2
3.9-1	Regional Fault Locations	3.9-5
3.11-1	Site Photographs	3.11-2
3.11-2	Site Photographs	3.11-3
4-1	Proposed Project and Alternatives	4-4

TABLES

ES-1	Summary of Impacts and Mitigation Measures	ES-4
2-1	Permits and Regulatory Approvals	2-17
3.1-1	San Joaquin River Streamflows at Newman Gauging Point	3.1-2
3.1-2	BMP Expected Pollutant Removal Efficiency	3.1-10
3.1-3	WWTP Effluent Limitations Under Regional Board Order 5-01-122	3.1-10
3.3-1	Farmland Conversion from 1998–2000 in Stanislaus County	3.3-5
3.5-1	Characteristics of Cultural Periods in California	3.5-3
3.6-1	Federal and State Criteria Air Pollutant Standards, Effects, and Sources	3.6-3
3.6-2	Summary of Monitoring Data for the Project Area, 1997–2001	3.6-7
3.6-3	Estimated Unmitigated Construction-Phase Emissions for Trenching and Boring	3.6-13
3.7-1	Stanislaus County Stationary Source Noise Performance Standards	3.7-6
3.7-2	Typical Construction Noise Levels	3.7-9
3.7-3	Typical Construction Equipment Noise Levels	3.7-9
3.8-1	Existing Daily Traffic Volumes on Roadways in and Around the Project Area	3.8-2
3.9-1	Active and Potentially Active Faults in the Vicinity of the Project Area	3.9-6
3.10-1	Known Hazardous Materials Sites	3.10-8
4-1	Comparison Matrix of the Project Alternatives	4-10

EXECUTIVE SUMMARY

INTRODUCTION

The City of Turlock (City) is proposing the construction of a new outfall pipeline (proposed pipeline) from the City's existing outfall at the intersection of Harding Road and Prairie Flower Road to the eastern bank of the San Joaquin River (Proposed Project). The City, acting as the Lead Agency, has prepared this Draft Environmental Impact Report (EIR) to provide the public and Responsible and Trustee Agencies reviewing the Proposed Project with information about the potential environmental effects, both beneficial and adverse, on the local and regional environment. This EIR has been prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended, Public Resources Code (PRC) §§21000 *et seq*.), and the CEQA Guidelines (California Code of Regulations (CCR), Title 14, §§15000 *et seq*.).

PROJECT GOALS AND OBJECTIVES

The primary goal and objective of the Proposed Project is to eliminate the discharge of the City's treated wastewater to the Harding Drain, a constructed agricultural irrigation drain owned, operated and maintained by the Turlock Irrigation District (TID). The Proposed Project would result in a change from the current point of discharge at the Harding Drain to a point of discharge directly to the San Joaquin River, upstream of the current confluence between the Harding Drain and the San Joaquin River. The Proposed Project does not involve any increase to the City's existing permitted treatment capacity.

Changing the point of discharge from Harding Drain to a direct discharge to the San Joaquin River will serve at least two beneficial purposes. First, removal of the City's permitted wastewater discharges from Harding Drain will remove it from an agricultural drain whose primary function is management of drainage from irrigated lands, including control of flooding by elevated groundwater and winter stormwater. This will relieve the City of any need to coordinate with TID regarding management of flows in the Drain, and allow TID to efficiently operate and maintain its system. Second, changing the point of discharge from a low-flow, constructed agricultural irrigation drain system may reduce or eliminate regulatory constraints with respect to future waste discharge requirements to the City issued by the Central Valley Regional Water Quality Control Board (Regional Board), while allowing TID and agricultural operations that runoff or discharge to Harding Drain to separately monitor and manage water quality associated with agricultural activities, which are subject to separate regulatory requirements.

PROPOSED PROJECT

The proposed pipeline will consist of a force main that extends from the terminus of the current outfall to the San Joaquin River covering a distance of approximately 5.7 miles. The diameter of the pipeline will be 36 inches to meet the design criteria for a projected future peak flow of 35 mgd. Trench depths will average between six and eight feet below the ground surface with the apex of the pipe averaging approximately three feet below grade. Other facilities associated with the force main, will include a pump station, post-aeration structure, submerged outfall and gravity line connecting the post-aeration structure to the outfall. These project components are described in detail; in Chapter 2.0 of the EIR.

PUBLIC INVOLVEMENT

A Notice of Preparation (NOP) for the Proposed Project was circulated for public review on May 30, 2003, pursuant to Sections 15082(a), 15103, and 15375 of the CEQA Guidelines. The NOP identified categories of environmental impacts to be evaluated in the EIR (**Appendix A**). In addition, two public scoping sessions were held in the City Hall, Turlock, California, on June 25, 2003 at 3:30 p.m. and 7:00 p.m. Comments received on the NOP and during the public scoping session were considered in the preparation of this EIR and are included in **Appendix B**. A refined list of issues identified during the NOP process is presented below:

- Water Resources
- Biological Resources
- Land Use and Agriculture
- Public Services and Utilities
- Cultural Resources
- Air Quality
- Noise
- Transportation and Traffic Circulation
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Aesthetic and Recreational Resources
- Growth Inducement
- Cumulative Impacts

ALTERNATIVES TO THE PROPOSED PROJECT

CEQA Guidelines (Sections 15123(b)(3) and 15126(f)) require an EIR to consider a range of alternatives that could feasibly attain most of the basic objectives of the Proposed Project. The City has been working with its engineer for several years to identify feasible and cost-effective options for removing is wastewater effluent from the Harding Drain. Following several feasibility studies, diversion via pipeline to the San Joaquin River proved to be the only feasible option. Several alignments were evaluated and rejected, based on mainly engineering constraints or significant land use conflicts. Reasons for the elimination of these alternatives are provided in Chapter 4.0. In light of those findings and to satisfy the requirements of CEQA, two alternative alignments were analyzed in addition to the No Project Alternative. These alternative alignments

essentially consist of rerouting the pipeline along alternative roadways or property lines within the project area and are illustrated in **Figure 4-1**. Chapter 4.0 provides a more detailed description of each alternative and its associated impacts as compared to the Proposed Project.

SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table ES-1 presents a summary of project-related impacts and proposed mitigation measures that, if implemented, would avoid or further minimize potential impacts. In the table, the level of significance of each environmental impact is indicated both before and after the application of the recommended mitigation measure(s).

For detailed discussions of all project impacts and mitigation measures, the reader is referred to the environmental analysis contained in **Chapter 3.0, Environmental Analysis**.

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	ENVIRONMENTAL IMPACT		MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.1 WATER RESOURCES				
3.1.1	Water Quality – Construction of the Proposed Project could result in increased erosion and sedimentation, with subsequent impacts to water quality and/or storm drain capacity during construction. Additionally, release of fuels or other hazardous materials associated with construction equipment could impact local surface and groundwater quality. (Potentially Significant)	3.1.1a	To minimize the exposure of sediments to runoff, the City would implement measures contained in the Construction Contractor's Guide and Specification of the Caltrans Storm Water Quality Handbook (The Handbook; April 1997) and the SWRCB Water Quality Order 99-08-DWQ, NPDES, General Permit for Stormwater Discharge Associated with Construction Activity.	LS
		3.1.1b	All construction plans and activities shall implement multiple BMPs to provide effective erosion and sediment control. These BMPs shall be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to be implemented as part of this mitigation measure shall include, but are not limited to, the following measures: • Temporary erosion control measures (such as silt fences, staked straw bales/ wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed for disturbed areas. • Dirt and debris shall be swept from paved streets in the construction zone on a regular basis, particularly before predicted rainfall events.	

Less-than-Significant = LS Beneficial = B Significant = S Cumulative Significant = CS Significant and Unavoidable = SU Potentially Significant = PS

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance. At minimum, vegetative application shall be done by September 15th to allow for plant establishment. No disturbed surfaces will be left without erosion control measures in place during the period of October 15th to April 15th. • Silt fences and catch basins will be placed below all construction activities at the edge of the river to intercept sediment before it reaches the river. These structures will be installed prior to any clearing or grading activities. • Spoil sites will be located such that they do not drain directly into the San Joaquin River or TID Laterals, if possible. If a spoil site drains into the river or local drains, catch basins will be constructed to intercept sediment before it reaches the river. Spoil sites will be graded to reduce the potential for erosion. While data is scarce regarding the effectiveness of BMPs as erosion and sediment controls, the expected pollutant removal efficiencies given in Table 3.1-2 suggest that multiple BMPs used in combination, properly installed and maintained, can achieve significant sediment removal. Therefore the final selection and design of erosion and sediment controls should include the use of multiple BMPs to protect water quality.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	BMPs proposed by the City's contractor shall be subject to approval by the City, and the City shall require that all parties performing construction under the Proposed Project incorporate into contract specifications the requirement that the contractor(s) comply with and implement these provisions. The contractor shall also include provisions for monitoring during and after construction activities to verify that these standards are met.	
	3.1.1c Implement Mitigation Measure 3.10.2.	
3.1.2 Hydrology – Removal of treated-wastewater from the Harding Drain will not reduce existing flows in the San Joaquin River, but would lead to reduced flows in the Harding Drain. (Less-than-Significant)	No mitigation is required.	
3.1.3 Water Quality – The elimination of the WQCF discharges to the Harding Drain would not result in adverse effects to water quality and beneficial uses (Less-than-Significant)	No mitigation is required.	
3.1.4 Water Quality – Project-related facilities are expected to result in a minimal increase in drainage flows as a result of runoff from increased amounts of impervious surfaces. The additional impervious surfaces would not represent significant sources of non-point source pollution, nor are they expected to contribute substantial additional sources of polluted runoff. (Less-than-Significant)	No mitigation is required.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.1.5 Water Quality – The discharge of tertiary treated wastewater to the San Joaquin River under the Proposed Project would not result in adverse changes to the volume and quality of discharge to the San Joaquin River. (Less-than-Significant)	No mitigation is required.	
3.1.6 Water Quality – The pipeline and flows associated with the Proposed Project would introduce the potential for leaks and sewer overflows, with impacts to surface and/or groundwater. (Less-than-Significant)	No mitigation is required.	
3.1.7 Groundwater Quantity – Implementation of the Proposed Project would not deplete local groundwater supplies or interfere substantially with groundwater recharge. (Less-than-Significant)	No mitigation is required.	
3.1.8 Drainage – The Proposed Project would not result in any significant adverse effects to the existing drainage pattern of the project area. (Less-than-Significant)	No mitigation is required.	
3.1.9 Flooding – The Proposed Project would involve the placement of an outfall structure within a 100-year flood hazard area for the San Joaquin River. However, this structure would not increase risks associated with flooding in the project area, including flooding as a result of the failure of a levee or dam. (Less-than-Significant)	No mitigation is required.	
3.1.10 Seiche, Tsunami, or Mudflow – The proposed Project would not result in the increased exposure of people or structures risks associated with inundation by seiche, tsunami, or mudflow. (Less-than-Significant)	No mitigation is required.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.2 BIOLOGICAL RESOURCES				
3.2.1	The Proposed Project may have significant adverse impacts, either directly or through habitat modifications, to terrestrial and aquatic endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12). (Potentially Significant)	3.2.1a	As noted above, the project area appears to provide only marginal habitat for GGS. Nonetheless, a survey for GGS will be conducted by a qualified biologist within 24 hours prior to the start of construction, and if GGS are present and there is a reasonable likelihood that construction will adversely impact GGS, the City and its construction contractor will adhere to the appropriate terms and conditions of the Programmatic Biological Opinion issued to the ACOE by the USFWS for giant garter snake (dated Nov. 13, 1997).	LS
		3.2.1b	Prior to construction, all construction workers shall take part in a Service-approved worker environmental awareness program given by a Service-approved biologist.	
		3.2.1c	The construction easement for the proposed crossings shall be fenced using temporary fencing to reduce the possibility of incidentally impacting giant garter snake habitat outside of the construction area.	
		3.2.1d	If construction activities occur between April 1st and August 31st, a survey for active Swainson's hawk nests shall be conducted along the proposed alignment according to the CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California by a qualified wildlife biologist. The survey shall be limited to trees within 500 feet of the proposed alignment.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.2.1e	If active nests are detected and potential impacts are identified, measures that will avoid or mitigate impacts will be implemented. Avoidance measures may include, but are not limited to, establishing buffer zones around nests and retaining a qualified wildlife biologist to monitor active nests during construction.	
3.2.2	Construction of the outfall along the eastern bank of the San Joaquin River could result in potentially significant adverse impacts to native fisheries. (Potentially Significant).	3.2.2a	Construction activities along the banks of and within the San Joaquin River will, to the extent feasible, be limited to the period between June 1st and August 31st, the period during which impacts to native fisheries are not likely to occur.	LS
		3.2.2b	Implement Mitigation Measure 3.1.1.	
3.2.3	Based on the habitats present in the Project area, several special-status species may be impacted by the Proposed Project. (Potentially Significant).	3.2.3a	Prior to construction, the proposed alignment (San Joaquin River levee, Harding Drain banks, and grassland habitat areas) shall be surveyed by qualified biologist for burrowing owls using established CDFG protocols (Appendix F).	LS
		3.2.3b	If burrowing owls are detected within the construction zone, mitigation that will avoid active nest sites or compensate for the loss of nest sites shall be developed in coordination with CDFG.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.2.3c	A qualified biologist shall survey the proposed pipeline trenching and aeration facility construction site within the annual/alkali grassland habitat for the presence of San Joaquin whipsnakes. The survey shall take place no more than 24 hours prior to construction. If a snake is detected by the survey, no construction shall take place until the snake has left the construction area and CDFG shall be notified for proper guidance. The performance standard for this action is that no snake shall be harassed or taken.	
		3.2.3d	Implement all mitigation measures listed for giant garter snakes. Biological monitors present during canal/ditch crossing construction shall also monitor for northwestern and southwestern pond turtles on the site, and pre-construction surveys shall also target northwestern and southwestern pond turtles.	
3.2.4	Based on the habitats present in the project area, several special-status plant species may be impacted by the Proposed Project. (Potentially Significant).	3.2.4a	Prior to construction of the Proposed Project, the proposed alignment and aeration facility location west of Carpenter Road, shall be surveyed by a qualified botanist for special-status plants at the appropriate flowering period (May–July) using established CNPS protocols.	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.2.4b	If special-status plants are detected within the construction zone or the immediate vicinity, mitigation that will avoid impacts within 50' of these plants or compensate for unavoidable impacts to habitat shall be developed in coordination with CDFG. Mitigation may include protection of existing rare plant occurrences and habitats by rerouting the alignment or protecting other alkaline wetland habitats in the area where they may occur at a 2:1 ratio using existing Mitigation Banks.	
3.2.5	The Proposed Project may result in the temporary fill of "other" waters of the U.S. Potential wetland areas located along the proposed alignment and aeration facility include areas on the inboard-side of the eastern levee of the San Joaquin River. (Potentially Significant).	3.2.5a	Fill of wetland areas will be minimized wherever possible. Temporary construction fencing will be erected around the Project site to reduce the potential of incidental fill.	LS
		3.2.5b	Following pipeline construction, wetland/stream crossings shall be restored to pre-construction contours. Areas exposed due to construction shall be re-vegetated using a mix of native vegetation.	
3.2.6	Removal of nesting raptors or their nests, or causing the abandonment of nests for these species due to construction activities would be considered a potentially significant impact. (Potentially Significant).	3.2.6a	If construction activities occur between March 15th and September 15th (the raptor breeding season), a survey for active nests of raptors shall be conducted by a qualified wildlife biologist at the project site and within a 500 foot buffer surrounding the site. These surveys should be integrated with pre-construction surveys conducted for Swainson's Hawk.	
		3.2.6b	Implement Mitigation Measure 3.2.1e.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.3 LAND USE AND AGRICULTURE				
3.3.1	The Proposed Project would generally be consistent with applicable land use goals, policies, and objectives of the City's General Plan. Additionally, the Proposed Project would generally conform with land use polices and zoning designations established for the project area by Stanislaus County. (Less-than-Significant).		No mitigation is required.	
3.3.2	Implementation of the Proposed Project would result in short-term construction impacts in the form of dust, noise, and traffic and access disruption to local residents located in close proximity to the proposed alignment. (Potentially Significant).	3.3.2a	The City of Turlock shall require its construction contractor to provide a minimum 2-week advance notice of the construction activities schedule to the affected community members adjacent to construction areas (e.g., residences, property owners, business owners, and public facility operators), including the posting of signs.	LS
		3.3.2b	The City of Turlock, in cooperation with its contractor(s), shall provide a phone number and community contact for inquiries about the project's schedule throughout the construction period. This information will be posted in a local newspaper and at City Hall and will be updated on a weekly basis.	
		3.3.2c	The City and its contractor(s) shall coordinate with local jurisdictions and obtain all necessary permits (e.g., encroachment permit, utility excavation permit), comply with permit conditions established to minimize construction impacts, and coordinate inspections with Stanislaus County to oversee construction activities.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.3.2d	Implement San Joaquin Valley Air Pollution Control District required fugitive dust control measures, Mitigation Measure 3.7.1a through d, and Mitigation Measure 3.8.1a through e.	
3.3.3	Implementation of the Proposed Project could result in the displacement of existing improvements during construction-related activities. (Potentially Significant).	3.3.3	The City's contractor shall, as part of the right-of-way surveys and final design work, identify all mailboxes, walls, fences, driveways, potable water wells and landscaping located in the alignment and prepare a relocation and replacement plan for each to address impacts resulting from displacement of existing improvements in the pipeline alignment.	LS
3.3.4	Construction of the Proposed Project could impact farmland and/or adjacent agricultural operations. Additionally routine maintenance over the long-term could further impact these operations. (Potentially Significant).	3.3.4	Restore affected lands to pre-project conditions.	LS
3.3.5	The Proposed Project would result in minimal conversion of Important Farmlands, as identified by the Department of Conservation, to non-agricultural use. (Potentially Significant).	3.3.5	Implement Mitigation Measure 3.3.4.	LS
3.3.6	Implementation of the Proposed Project would conflict with an existing Williamson Act contract. (Less-than-Significant).	3.3.6	No mitigation is required.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

	ENVIRONMENTAL IMPACT		MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.4 PUBLIC SERVICES AND UTILITIES				
3.4.1	Construction of the Proposed Project could result in substantial adverse impacts to the provision of governmental services, thereby adversely affecting current service ratios, response times or other performance objectives for local public service providers. (Potentially Significant).	3.4.1a	The City's construction contractor(s) shall provide a copy of the Traffic Control Plan to the Sheriff's Department, County Fire Department, and any private ambulance service providers for informational and coordination purposes prior to construction.	LS
		3.4.1b	The City's construction contractor(s) shall provide 72-hour notice to the local service providers prior to construction of individual pipeline segments. Discussion on the Traffic Control Plan is provided in Section 3.8, Transportation and Traffic Circulation, under Measure 3.8.1a.	
3.4.2	Construction of the Proposed Project is not expected to require or result in the construction of new storm drain water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less-than-Significant).		No mitigation required.	
3.4.3	The Proposed Project would not increase water demand or change water supply availability. (Less-than-significant).		No mitigation required.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.4.4	Materials that would need disposal as part of construction of the Proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. After construction, the project is not anticipated to generate significant amounts of solid waste beyond the current baseline condition. (Less-than-Significant).		No mitigation required.	
3.4.5	Construction of the Proposed Project would comply with federal, state and local statutes and regulations related to solid waste. (Less-than-Significant).		No mitigation required.	
3.4.6	Construction of the Proposed Project could encounter or affect under- and above-ground utilities and result in temporary interruptions in utility service. (Potentially Significant).	3.4.6	Underground utilities and service connections shall be identified by the City's construction contractor(s) prior to commencing any excavation work through the implementation of an underground services alert (USA). The exact utility locations will be determined by hand-excavated test pits dug at locations determined and approved by the construction manager (also referred to as "pot-holing"). Temporary disruption of service may be necessary to allow for construction. No service on such lines would be disrupted until prior approval is received from the construction manager and the service provider.	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.5 CULTURAL RESOURCES				
3.5.1	Implementation of the proposed pipeline may affect unknown, potentially significant prehistoric and historic resources. (Potentially Significant).	3.5.1	If any historic or prehistoric find is determined to be significant by a qualified archaeologist, representatives of the City and the archaeologist and/or paleontologist would meet to determine an appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards in accordance with CEQA Guidelines Section 15064.5 (f).	LS
3.5.2	The implementation of the proposed project may adversely affect previously undocumented paleontological resources. (Potentially Significant).	3.5.2	Implement Mitigation Measure 3.5.1.	LS
3.5.3	The implementation of the proposed project may adversely impact human burials or osteological remains. (Potentially Significant).	3.5.3	In the event of the discovery of human remains, CEQA Guidelines 15064.5 (e)(1) shall be followed, which is as follows: (1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: (A) The Coroner of the county in which the remains are discovered must be contacted to verify that the remains are human, that no investigation of the cause of death is required, and	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	(B) If the coroner determines the remains to be Native American: 1. The coroner shall contact the Native American Heritage Commission within 24 hours. 2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. 3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.6 AIR QUALITY		
3.6.1 Fugitive dust generated during future project construction activities could be substantial and would contribute to intermittent ambient respirable particulate matter concentrations that could contribute to the continued violation of State PM10 standards. The SJVAPCD requires that all construction activities implement fugitive dust control measure in accordance with Regulation VIII. With the implementation of these measures for project-specific activities, a less than significant impact is expected. (Less-than-Significant).	No mitigation is required beyond the implementation of measure identified in Regulation VIII, Rule 8010.	
3.6.2 The long-term operation of the Proposed Project would not result in a substantial increase in criteria air pollutants and/or TACs. (Less-than-Significant).	No mitigation is required.	
3.6.3 The Proposed Project would not create objectionable odors affecting a substantial number of people. (Less-than-Significant)	No mitigation is required.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.7 NOISE				
3.7.1	Construction associated with the implementation of the Proposed Project would temporarily and intermittently increase noise levels along the proposed pipeline alignment. The temporary increase in noise could adversely affect nearby sensitive receptor locations along the proposed alignment. Construction noise resulting from the use of heavy equipment along the proposed route is considered a potentially significant impact of the Proposed Project. (Potentially Significant).	3.7.1a	Construction activities within rural residential areas shall be limited to the hours and days specified by the County as follows: 1. Construction activity is limited to hours and days when noise standard exemptions apply, per encroachment permit. 2. If construction outside those exempt time periods is proposed, the City shall obtain a variance from the County. 3. Where no construction exemption is granted, construction shall be scheduled between 7:00 a.m. to 7:00 p.m., Monday to Friday, or other hours and days as established by the County in applicable encroachment permits.	LS
		3.7.1b	The City shall require in construction specifications that the contractor select staging areas as far as feasibly possible from existing residences. Activities within these staging areas shall conform to the time limitations established in Mitigation Measure 3.7.1a.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	3.7.1c Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturers' specifications) and by shrouding or shielding impact tools. All equipment shall have sound-control devices no less effective than those provided by the manufacturer.	
	3.7.1d The City shall require in construction specifications that the contractor place all stationary noise generating construction equipment as far away as feasibly possible from sensitive receptors or in an orientation minimizing noise impacts (i.e., behind existing barriers or storage piles, etc.).	
3.7.2 The Proposed Project could result in a substantial permanent increase in ambient noise levels in the project vicinity. (Less-than-Significant).	No mitigation is necessary.	
3.8 TRANSPORTATION AND TRAFFIC CIRCULATION		
3.8.1 Construction of the proposed pipeline would reduce the available width of or in some instances the entire roadway, thereby resulting in short-term yet significant traffic delays for vehicles traveling past the construction zone on the affected roadways. (Potentially Significant).	Prior to the onset of construction of the project, a Traffic Control Plan will be prepared for all project-affected roadways and intersections. The Traffic Control Plan shall comply with requirements in all relevant encroachment permits issued by Stanislaus County. The Traffic Control Plan to be prepared by the construction contractor(s) may include the following measures:	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• Maintain the maximum amount of travel lane capacity during non-construction periods, with all trenches covered with steel plates or backfilled and roadways open for use. • Use detour signing on alternate access streets when temporary full street closure is required. Alternatively, limit the construction work zone in each block to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone where feasible. • Restrict construction to non-peak traffic periods as required for specific work sites in encroachment permits. Weekend and night work shifts may be considered in non residential areas only. • Coordinate construction activities (time of year and duration) to minimize traffic disturbances adjacent to agricultural areas and dairies. • Post advanced warning of construction activities (e.g., signs, articles in newspapers, notices on radio/TV, etc.) to allow motorists to select alternative routes in advance. • Specifications that allow for direct passage for bicyclists and pedestrians in all areas potentially affected by project construction. If direct passage is not feasible, the detour routes shall be provided.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
			• Warning signs and speed control (including signs informing drivers of State-legislated double fines for speed infractions in a construction zone) shall be provided, where necessary, to achieve required speed reductions for safe traffic flow through the work zone.	
		3.8.1b	Prior to onset of construction, and in consultation with Stanislaus County, the City's construction contractor(s) shall identify areas where night construction may be appropriate. Night construction shall be performed in all areas identified, but not within 1,000 feet on an existing residence.	
		3.8.1c	Expedite construction by using multiple work crews so that disturbances are kept as short in duration as possible.	
		3.8.1d	Arrange for a 24-hour telephone hotline to address public questions and complaints during project construction, and to offer information about detours, etc.	
3.8.2	Construction of the Proposed Project would generate short-term increases in vehicle trips by construction workers and construction vehicles. (Potentially Significant).	3.8.2a	As part of the Traffic Control Plan for roadway segments and intersections (see Measure 3.9.1a), designated haul routes will be specified for the project after consultation with relevant agencies (e.g., Caltrans and County Public Works).	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.8.2b	To the extent possible, daily work sites will be scheduled such that their relative locations shall disperse truck trips over a number of different haul routes, thereby lessening the number of truck trips on any one road. In addition, construction worker and truck trips during peak traffic periods shall be avoided, to the extent possible.	
3.8.3	Construction of the Proposed Project would affect access to adjacent land uses and streets for both general and emergency traffic and for bicycle/pedestrian access. (Potentially Significant).	3.8.1a	As part of the Traffic Control Plan for roadway segments and intersections (Measure 3.9.1a), comprehensive strategies for maintaining emergency access shall be developed for sensitive land uses such as residential and agricultural areas in consultation with the facility owner or administrator. Strategies shall include, but not be limited to, maintaining steel trench plates at the construction sites to restore access across open trenches, and identification of alternate routing around construction zones. Also, police, fire, and other emergency service providers shall be notified of the timing, location, and duration of construction activities and the location of detours and lane closures.	LS
		3.8.3b	Implement Mitigation Measure 3.8.1b.	
		3.8.3c	Use detour signing on alternate access streets established when temporary full street closure is required.	
		3.8.3d	The City shall provide a minimum 72 hour advance notice of access restrictions for residents and businesses.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.8.4	Construction of the Proposed Project would not result in any significant disruptions to transit service. (Less-than-Significant).		No further mitigation required.	
3.8.5	Construction of the Proposed Project would generate a demand for parking spaces for construction worker vehicles. In addition, pipeline construction could temporarily displace on-street parking along the proposed alignment. (Potentially Significant).	3.8.5	Construction contracts shall require the contractor(s) to provide off-street parking for construction worker's vehicles in the vicinity of the work zone, or, workers may be shuttled to the work site from an off-site location.	LS
3.8.6	Construction of the Proposed Project would increase potential traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways. (Potentially Significant).	3.8.6	Implement Mitigation Measure 3.8.1a.	LS
3.8.7	Construction of the Proposed Project would increase wear and tear on the designated haul routes used by construction vehicles to access the project work site(s). (Potentially Significant).	3.8.7a	Prior to construction, the City's construction contractor(s) will be responsible for assessing current road conditions for all project routes in efforts to develop post-construction road restoration requirements. An agreement shall be entered into by the City and corresponding jurisdiction prior to construction that details post-construction road restoration requirements. Staff of the Stanislaus County Public Works Department shall review the post-construction restoration standards for each of the affected haul routes. The City shall perform roadway repairs or rehabilitation as necessary such that post-construction requirements are met.	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.8.7b	The City shall obtain encroachment permits from Stanislaus County prior to construction of the project, and comply with haul route designations, and roadway wear monitoring and repairs conditions.	
3.9 GEOLOGY, SOILS, AND SEISMICITY				
3.9.1	In the event of a major earthquake in the region, seismic groundshaking could cause collapse or structural damage to the proposed pipeline and associated facilities. Structural damage to project components resulting from substantial displacement along various fault sources could indirectly result in significant injury to people and disruption of major services (e.g., sanitary sewer). (Less-than-Significant).		No mitigation is required.	
3.9.2	The presence of expansive and corrosive soils could result in structural damage to the proposed pipeline and associated facilities. (Less-than-Significant).		No mitigation is required.	
3.9.3	The project area could be subjected to geologic hazards, including liquefaction, differential settlement, total settlement, and minor slumping along the Harding Drain. (Less-than-Significant).		No mitigation is required.	
3.9.4	Implementation of the Proposed Project could result in increased surface soil erosion thereby lending to increased siltation of local waterways. (Potentially Significant).		Implement Mitigation Measures 3.1.1a, 3.1.1b, and 3.1.1c.	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.10 HAZARDS AND HAZARDOUS MATERIALS				
3.10.1	Construction of the Proposed Project may expose construction workers, the general public, and the environment to pre-existing hazardous materials contamination. (Potentially Significant).	3.10.1a	If contaminated soil and/or groundwater or suspected contamination were encountered during project construction, work shall be halted in the area, and the type and extent of the contamination shall be identified. The depth of trenches would be approximately eight to nine feet. A contingency plan to dispose of any contaminated soil or groundwater should be developed through consultation with the appropriate regulatory agencies. If dewatering were to occur during project construction, the RWQCB should be consulted for any special requirements such as containing the water until it can be sampled and analyzed to ensure that no contaminants are in the groundwater that could be released into the TID drainage system.	LS
		3.10.1b	Implement Mitigation Measure 3.1.1b.	
3.10.2	During construction, there lies a risk of exposure to hazardous materials such as fuel and other chemicals used for pipeline excavation and construction activities. (Potentially Significant).	3.10.2	The City shall ensure, through the enforcement of contractual obligations, that all contractors transport, store and handle construction-related hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the Department of Transportation, California RWQCB, the local fire departments, and the local environmental health department.	LS

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
			Recommendations shall include as appropriate transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using applicable federal, state and/or local regulatory agency protocols. In addition, all precautions required by the RWQCB issued NPDES construction activity stormwater permits would be taken to ensure that no hazardous materials enter any nearby waterways. In the event of a spill, the City shall ensure, through the enforcement of contractual obligations, that all contractors immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. If required by the local fire departments, the local environmental health department, or any other regulatory agency, contaminated media shall be collected and disposed of at an off-site facility approved to accept such media.	
3.10.3	The Proposed Project could interfere with an emergency response or evacuation plan. (Potentially Significant)	3.10.3	Implement Mitigation Measure 3.8.3a.	LS
3.11 AESTHETICS AND RECREATION				
3.11.1	The Proposed Project would modify the existing visual character of the project area. (Less-than-Significant).		No mitigation is required.	

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TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT		MITIGATION MEASURES		LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.11.2	The Proposed Project would involve the construction of structures that would result in the creation of new sources of daytime glare and/or nighttime illumination. (Potentially Significant).	3.11.2	The City will install security lighting with directional shields to concentrate lighting toward the site. The night time security and associated parking lighting fixtures will be equipped with directional shields that aim light downward and away from adjacent residential properties. In addition, the placement of lighting fixtures would be selected to concentrate light on-site to avoid spillover onto adjacent residential properties.	LS
3.11.3	Impacts to scenic corridors and officially designated routes. (No Impact).		No mitigation is required.	
3.11.4	The Proposed Project would not result in an indirect increase in visitor 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).		No mitigation is required.	
3.11.5	The Proposed Project would not substantially disrupt or conflict with the use of existing recreational facilities to the extent that it would affect the recreational value of such facilities. (This impact is considered less-than-significant.		No mitigation is required.	

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CHAPTER 1.0

INTRODUCTION

CHAPTER 1.0

INTRODUCTION

1.1 PURPOSE AND USE OF THE ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) requires that all state and local government agencies consider the environmental consequences of programs and projects over which they have discretionary authority before taking action on them. The primary purpose of this Environmental Impact Report (EIR) is to inform agencies and the public of any significant environmental effects associated with the installation of the proposed pipeline and outfall (Proposed Project). The City of Turlock (City) will be the lead agency for the Proposed Project and is preparing this EIR to provide the public, and Responsible and Trustee Agencies with information identifying the potential environmental effects, both beneficial and adverse, on the local and regional environment. As required by CEQA, this EIR also identifies ways to minimize any significant environmental effects of the Proposed Project, and describes a reasonable range of alternatives that would avoid or reduce any significant adverse effects of the Proposed Project (State CEQA Guidelines Section 15121[a]). Ultimately, the City will use information provided in the EIR, along with a variety of other source materials, to determine whether or not to approve the Proposed Project.

1.2 CEQA EIR PROCESS

TYPE OF EIR

This draft Environmental Impact Report has been prepared as a Project EIR pursuant to CEQA *Guidelines* Section 15161. This type of EIR focuses primarily on the changes in the environment that would result from the Proposed Project. The EIR, by statute, is required to examine all phases of the project including planning, construction, and operation. The issues evaluated in detail in this Project EIR include the following: land use and agricultural conversion, storm drainage/hydrology, water quality, air quality, traffic and circulation, biological resources, hazardous materials, noise, infrastructure availability, public services demands, cultural resources, and recreation.

INITIAL STUDY AND NOTICE OF PREPARATION

In accordance with Sections 15082(a), 15103, and 15375 of the CEQA Guidelines, the City prepared and circulated a notice of preparation (NOP) of a Draft EIR for the Proposed Project for

a 30-day comment period, from May 30, 2003 through June 30, 2003. **Appendix A** contains a copy of the NOP and Initial Study and a list of the agencies, organizations, interested groups and individuals receiving the NOP for review. Concerns raised in response to the NOP were considered during preparation of the Draft EIR and are included as **Appendix B**. In addition, two scoping sessions were held at the Turlock City Hall on June 25, 2003 to solicit verbal comments on the project from interested parties.

DRAFT EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the Proposed Project, description of the environmental setting, and identifies the potential environmental impacts of the Proposed Project. Based on information provided in the impact analysis for each respective resource topic, the Draft EIR identifies measures, where appropriate, to be implemented to mitigate impacts found to be significant. As required by CEQA, the Draft EIR also contains an analysis of alternatives considered in addition to the Proposed Project.

PUBLIC REVIEW

The Draft EIR for the Proposed Project will be circulated to numerous agencies, organizations, and/or interested groups and persons for comment during the 45-day review period for the Draft EIR. The Draft EIR will also be made available for public review at the following location during the 45-day review period:

City of Turlock Municipal Services Department
156 South Broadway, Suite 270
Turlock, CA 95380

City of Turlock Public Library
550 Minaret Avenue
Turlock, CA 95380

Available for purchase at:

Kinkos
1451 Geer Road
Turlock, CA 95380

Written comments on the Draft EIR should be submitted via U.S. Mail to the following location before the conclusion of the 45-day review and comment period:

Steve Brown, CEQA Project Manager
Environmental Science Associates
8950 Cal Center Drive, Bldg. 3, Suite 300
Sacramento, California 95826

FINAL EIR AND EIR CERTIFICATION

Written and oral comments received in response to the Draft EIR will be addressed in a response to comments document, which, together with the Draft EIR, will constitute the Final EIR. After review of the Proposed Project and the Final EIR, City staff will recommend to the City Council whether to approve, disapprove, modify, or continue the Proposed Project. After completion of the Final EIR, a public hearing will be held in which the City Council will review the Final EIR and hear City staff recommendations and public testimony, after which the City Council will decide whether to certify the Final EIR. The City Council may approve the Proposed Project even if significant impacts identified in the EIR cannot be mitigated. To do so, the City Council must state in writing the specific reasons to support its action. This would include the adoption of Findings of Fact and a Statement of Overriding Considerations. The appropriate findings must be included in the record of the project's approval and mentioned in the Notice of Determination (CEQA Guidelines, Section 15093[c]).

MITIGATION MONITORING AND REPORTING PROGRAM

CEQA Section 21081.6(a) requires Lead Agencies to "adopt a reporting or mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." Throughout this Draft EIR, 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 or terms of condition for the Proposed Project will be included in a monitoring and reporting program to verify compliance. A specific Mitigation Monitoring and Reporting Program required by CEQA for the Proposed Project will be prepared at the time of the Final EIR and included as part of and incorporated into the project.

1.3 ASSUMPTIONS USED IN THE EIR

On May 11, 2001, the Regional Board issued a National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements, Order No. 5-01-122, (Permit) and a Cease and Desist Order (CDO), Order No. 5-01-123, attached as **Appendix C**. The Permit required the City to achieve compliance with specific effluent and receiving water limitations by May 2006.

As a result of a Petition for Review filed by the City in May 2001 with the State Water Resources Control Board (State Board), on October 3, 2002, the State Board issued State Water Resources Control Board Order WQO 2002–0016 in which the State Board remanded certain provisions of the Permit and CDO to the Regional Board for re-evaluation and revision. The Regional Board has not yet issued a revised Permit and/or CDO to the City. Thus, the provisions of the Permit and CDO that remain, and with which the City is currently in the process of complying with, include reduced levels of biochemical oxygen demand (BOD), total suspended solids (TSS), total coliform, turbidity, and ammonia, as well as the requirement to construct tertiary treatment facilities to meet these limitations. The City has already completed construction and start-up of its nitrification facilities to address the newly imposed requirements for ammonia and is currently

in the process of constructing the tertiary treatment facilities. As such, the analysis in this Draft EIR assumes all treatment upgrades will be constructed and operational by May 2006.

1.4 TERMINOLOGY USED IN THE EIR

This Draft EIR uses the following terminology to describe environmental effects of the Proposed Project.

- **Significance Criteria:** 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 Draft EIR include those are set forth in the CEQA Guidelines, or can be discerned from the CEQA Guidelines; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the City of Turlock and Stanislaus County General Plan.

- **Beneficial Impact:** A project impact is considered beneficial if it will result in the improvement of an existing physical condition in the environment (no mitigation required).

- **Less-than-Significant Impact:** A project impact is considered less-than-significant when it does not reach the specified threshold of significance and would therefore cause no substantial change in the environmental (no mitigation required).

- **Potentially Significant Impact:** A potentially significant impact is an environmental effect that may cause a substantial adverse change in the environment; however, additional information is needed regarding the extent of the impact to make the determination of significance. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact. Mitigation measures and/or project alternatives are identified, when feasible, to reduce these effects to the environment.

- **Significant Impact:** A project impact is considered significant if it results in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects in the context of the specified significance criteria. Mitigation measures and/or project alternatives are identified, when feasible to reduce these effects to the environment.

- **Significant Unavoidable Impact:** A project impact is considered significant and unavoidable if it would result in a substantial adverse change in the environment that cannot be avoided or mitigated to a less-than-significant level if the project is implemented.

- **Cumulative Significant Impact:** A cumulative impact can result when a change in the environment results from the incremental impact of a project when added to other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects. Mitigation measures are identified, when feasible, for the significant cumulative impacts.

The EIR also identifies feasible mitigation measures that avoid or substantially reduce the project's significant environmental effects (CEQA Guidelines Section 15126.4). The CEQA Guidelines (Section 15370) defines mitigation as:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

1.5 EIR ORGANIZATION

The content and format of this Draft EIR is designed to meet the current requirements of CEQA (Public Resources Code, Section 21000, et. seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000, et, seq.). The Draft EIR is organized into the following chapters so that the reader can easily obtain information about the Proposed Project and its specific issues.

Chapter 1.0, Introduction. This chapter describes the purpose and organization of the Draft EIR and the EIR preparation, review, certification process, and assumption used.

Chapter 2.0, Project Description. This chapter describes the project location, project background, outlines project objectives, list of permits and approvals required for the project, and summarizes components of the Proposed Project, pursuant to CEQA Guidelines Section 15124.

Chapter 3.0, Environmental Setting, Impacts, and Mitigation Measures. Each environmental issue area describes the existing environmental setting, discusses the environmental impacts associated with project construction and operation, and identifies mitigation measures for the impacts of the Proposed Project, pursuant to CEQA Guidelines, Sections 15125, 15126, 15126.2 and 15126.4.

Chapter 4.0, Alternatives to the Proposed Project. This chapter provides descriptions and analysis for each of the alternatives to the Proposed Project, pursuant to CEQA Guidelines Section 15126(f) and 15126.6.

Chapter 5.0, Growth Inducing Impacts. This chapter discusses the potential for the Proposed Project to induce urban growth and development, pursuant to CEQA Guidelines Section 15126(d).

Chapter 6.0, Other Statutory Considerations. Significant unavoidable adverse impacts and significant irreversible impacts of the Proposed Project are discussed, pursuant to CEQA Guidelines 15126(b) and (c). This chapter also discusses the potential for the Proposed Project to result in cumulative impacts, pursuant to CEQA Guidelines Section 15130.

Chapter 7.0, Report Preparation. This chapter provides the names of City staff and the EIR authors and consultants, pursuant to CEQA Guidelines 15129.

Chapter 8.0, Acronyms. This chapter provides a list of technical terms used, including definitions.

Chapter 9.0, References. This chapter provides a list of reference materials and persons consulted during the preparation of the EIR.

Appendices. The appendices are located at the back of the EIR and are referenced in the Table of Contents.

1.6 EIR PREPARATION

This EIR has been prepared by consulting staff from *Environmental Science Associates* (ESA) under contract to the City of Turlock. The Draft EIR has been prepared for the City in accordance with CEQA (Pub. Res. Code Section 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulations [CCR], Section 15000 et seq.). Staff members from the City and ESA who helped prepare this EIR are identified in **Chapter 7.0, Report Preparation**.

CHAPTER 2.0

PROJECT DESCRIPTION

CHAPTER 2.0

PROJECT DESCRIPTION

2.1 PROJECT LOCATION

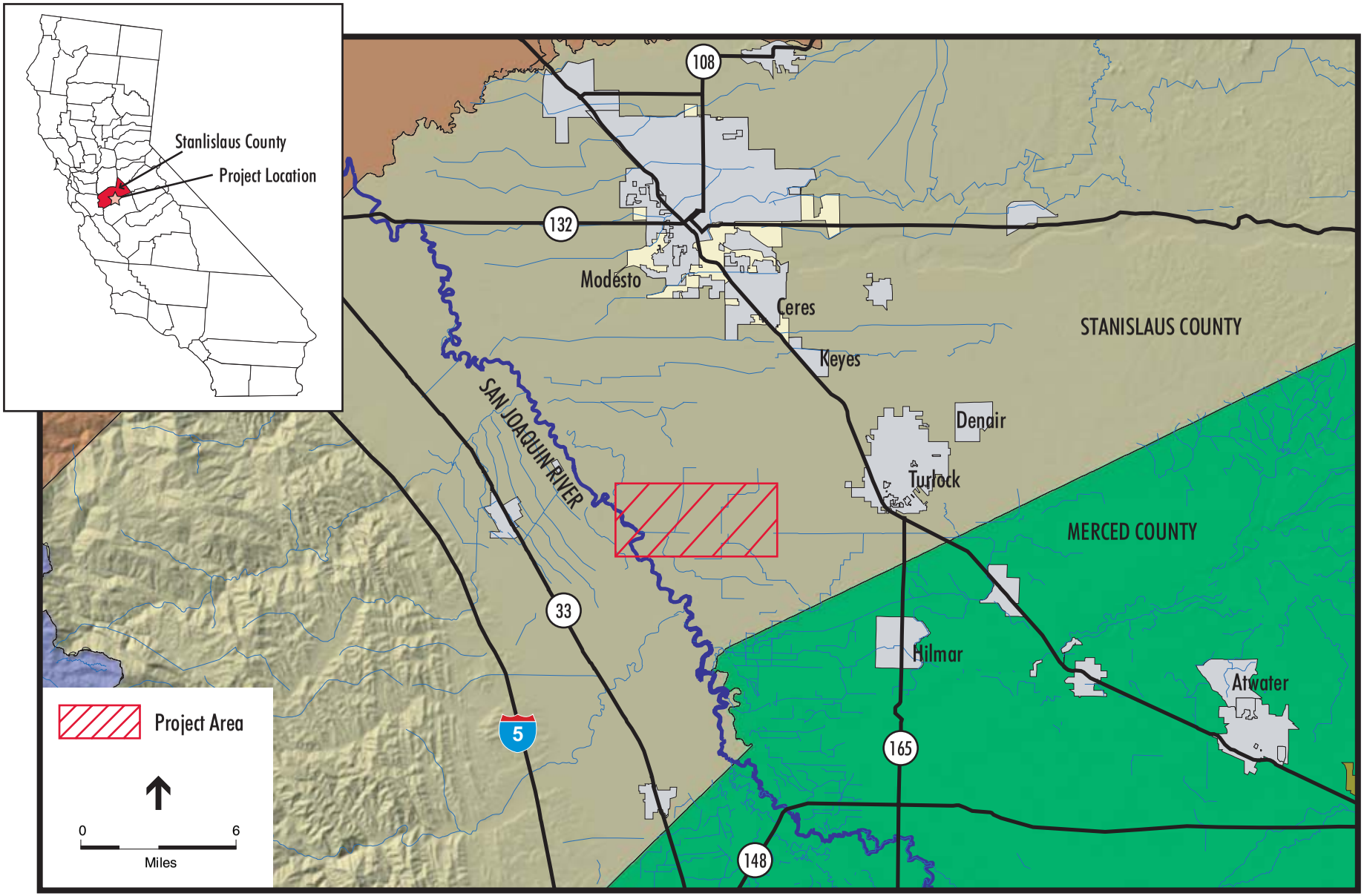
The City of Turlock (City) is located in south central Stanislaus County, California, roughly seven miles south of the City of Modesto (see **Figure 2-1**). San Joaquin County lies to the north, Merced County to the south, the Sierra Nevada mountain range to the east, and the San Joaquin River to the west. The City is approximately 96 miles south of Sacramento and 92 miles east of Oakland. The principal highways linking the City to other parts of the state are State Routes (SR) 99 and 165 (See **Figure 2-1**).

The project alignment would parallel Harding Road between Prairie Flower Road, west of the Turlock City limits, and the east bank of the San Joaquin River. The alignment will cover a distance of approximately 5.6 miles (29,500 feet) and traverse Stanislaus County roadways and Turlock Irrigation District (TID) canal rights-of-way (ROW). Land use within the project area consists of scattered-clusters of rural residences, large sections of cultivated agricultural, dairy feed lots and open space lands along the San Joaquin River. According to the U.S. Geological Survey (USGS) Hatch and Crows Landing 7.5-minute quadrangles, the pipeline alignment will cross or border portions of Sections 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36 T5S, R9E, and the eastern half of Sections 25 and 36 T5S, R8E Mount Diablo Baseline and Principle Meridian.

2.2 PROJECT BACKGROUND

2.2.1 CITY OF TURLOCK WASTEWATER WATER QUALITY CONTROL FACILITY

The City's Regional Wastewater Water Quality Control Facility (WQCF) has a permitted capacity of 20 million gallons per day (mgd) and currently provides a secondary level of treatment of wastewater from domestic, commercial, and industrial sources from the City of Turlock and the unincorporated communities of Keyes and Denair. Wastewater flows from the City of Ceres is also treated at the Turlock WQCF. Discharges from the City's WQCF average approximately 11 mgd. The Proposed Project would not increase the City's already permitted wastewater treatment capacity.



SOURCE: Teale Data Center and Environmental Science Associates, 2002

Figure 2-1
Regional Map

The City's WQCF is located to the west of SR 99 on Walnut Avenue, north of Linwood Avenue and south of West Main Street. Treated secondary effluent is discharged from the WQCF to the Harding Drain immediately downstream of TID's Drop 32 of the Ceres Main Drain via an existing underground pipeline system. The City's WQCF is currently being upgraded to provide tertiary treatment to comply with Order No. 5-01-122, the permit issued by the Central Valley Regional Water Quality Control Board's (Regional Board) CDO, consistent with Title 22 requirements. All of the WQCF facility upgrades and improvements are currently under or planned for construction on the existing 117 acre plant site.

2.2.2 DESCRIPTION OF HARDING DRAIN

The Harding Drain was constructed and is currently operated and maintained by TID as an agricultural irrigation conveyance drain system to intercept and convey irrigation return flows. Formed in 1887, TID was the first irrigation district organized in California. TID supplies water to its growers through an irrigation system, which was designed and engineered for agricultural use. Shortly after its formation, TID constructed the canal and drain system, in part by excavating lands to create the canals and drains for its irrigation system. Later, the excavated canals were lined with concrete. Meanwhile, the drains, including the Harding Drain, comprised of earthen materials, were excavated at suitable locations to collect irrigation return flows and intercept subsurface drainage. The irrigation water that is not uptaken by crops or lost to evapotranspiration returns by gravity to drains, such as Harding Drain.

The Harding Drain is piped through the eastern levee of the San Joaquin River before reaching the flap gates, which release any water present in the Harding Drain to the River. Flows in Harding Drain fluctuate depending upon irrigation return flows, and the amount of stormwater, groundwater, or other discharges present. Along with treated wastewater from the City, flow in the Harding Drain consists of a combination of TID operational spill water, tailwater from row and orchard crops, irrigation discharges from dairy feed lots that are located adjacent to Harding Drain, local runoff due to precipitation, and flows from groundwater dewatering.

TID has no intention of recycling or reusing water discharged by the City's WQCF to Harding Drain. As such, several years ago, TID confirmed with the Regional Board cessation of use of pump 152 and disconnection of the electrical supply. Accordingly, Regional Board Order No. 84-118, formerly regulating any potential reuse of the water in Harding Drain, was rescinded by the Regional Board.

2.2.3 CURRENT REGULATORY REQUIREMENTS APPLICABLE TO CITY'S WQCF

On May 11, 2001, the Regional Board issued a NPDES Permit, Order No. 5-01-122, and a CDO, Order No. 5-01-123. The Permit required the City to achieve compliance with specific effluent and receiving water limitations by May 2006. As a result of a Petition for Review filed by the City in May 2001 with the State Water Resources Control Board (State Board), on October 3, 2002, the State Board issued Order WQO 2002-0016 in which the State Board remanded certain

provisions of the Permit and CDO to the Regional Board for re-evaluation and revision. The Regional Board has not yet issued a revised Permit and/or CDO to the City. For this reason, the provisions of the Permit and CDO that remain, and with which the City is currently in the process of complying with, include reduced levels of Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), total coliform, turbidity, and ammonia, as well as the requirement to construct tertiary treatment facilities to meet these limitations. The City has already completed construction and start-up of its nitrification facilities to address the newly imposed requirements for ammonia and is currently in the process of constructing the tertiary treatment facilities. As such, the analysis in this draft EIR assumes all treatment upgrades will be constructed and operational by May 2006.

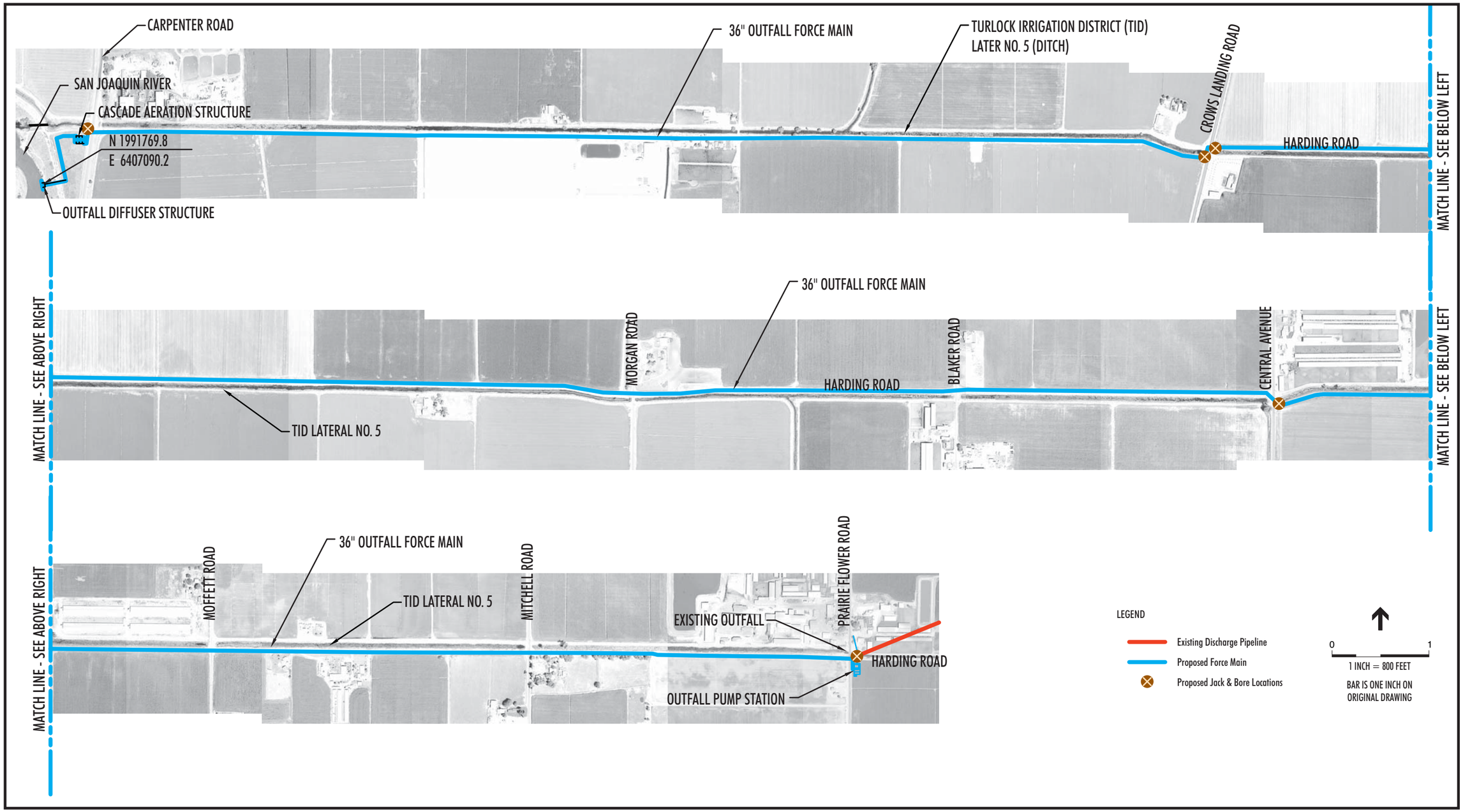
2.3 PROJECT GOALS AND OBJECTIVES

The primary goal and objective of the Proposed Project is to eliminate the discharge of the City's treated wastewater to the Harding Drain, a constructed agricultural irrigation drain owned, operated and maintained by TID. The Proposed Project would result in a change from the current point of discharge at the Harding Drain to a point of discharge directly at the San Joaquin River, approximately 560 feet upstream of the confluence between the Harding Drain and the San Joaquin River. Changing the point of discharge from Harding Drain to a direct discharge to the San Joaquin River will serve at least two beneficial purposes. First, removal of the City's permitted wastewater discharges from Harding Drain will remove it from an agricultural drain whose primary function is management of drainage from irrigated lands, including control of flooding by elevated groundwater and winter stormwater. This will relieve the City of any need to coordinate with TID regarding management of flows in the Drain, and allow TID to efficiently operate and maintain its system. Second, changing the point of discharge from a low-flow, constructed agricultural irrigation drain system may reduce or eliminate regulatory constraints with respect to future waste discharge requirements issued to the City by the Regional Board, while allowing TID and agricultural operations that runoff or discharge to Harding Drain to separately monitor and manage water quality associated with agricultural activities, which are subject to separate regulatory requirements.

2.4 PROJECT FACILITIES AND ATTRIBUTES

TREATED-WASTEWATER EXPORTATION PIPELINE

The proposed pipeline will consist of a force main that extends from the terminus of the current outfall to the San Joaquin River and covers a distance of approximately 5.6 miles in length [or: 29,500 feet] (**Figure 2-2**). The diameter of the pipeline will be 36 inches to meet the design criteria for a peak flow of 35 mgd. Access manholes or buried blind flanged tees will be provided every ¼ to ½ mile for maintenance and inspection purposes. Trench depths will average between six and seven feet below the ground surface with the top of the pipe averaging approximately three feet below grade. After construction is complete, the pipeline would be within TID or County ROW except



SOURCE: Carollo Engineers and Environmental Science Associates, 2004

Figure 2-2
Proposed Project Alignment

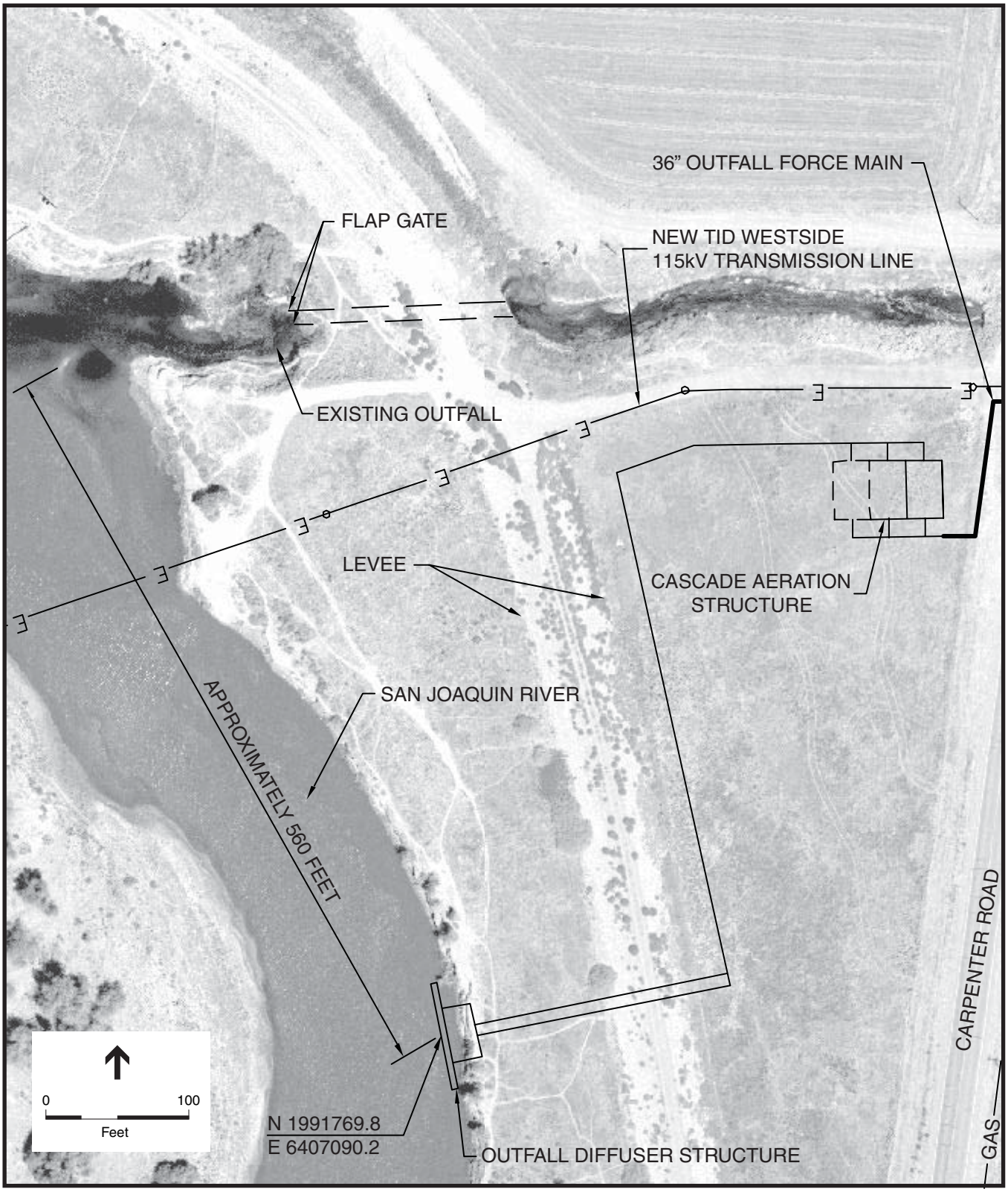
for areas west of Carpenter Road where a 15-foot permanent easement would be acquired for the force main. Other facilities associated with the force main, as depicted in **Figure 2-2**, will include a pump station, post-aeration structure, submerged outfall and gravity line connecting the post-aeration structure to the outfall. These facilities described in further detail below.

Post Aeration Structure. As part of the Proposed Project, a cascade aeration structure will be located on the land-side of the San Joaquin River levee near the outfall to maintain dissolved oxygen levels. The 36" force main will terminate at the aeration structure. A pump station will lift effluent to the top of structure to cascade down a series of steps prior to entering a gravity line. The approximate location of the aeration structure is depicted in **Figure 2-3**. The footprint of the aeration structure is approximately 3,200 square feet (sq. ft.) when all phases are complete. The structure will be approximately 75 feet by 40 feet and 12 to 20 feet above grade (see **Figure 2-4**). The aeration structure will be constructed approximately 120 feet, upstream of the Harding Drain (see **Figure 2-3**). Effluent will flow by gravity from the aeration structure to the outfall diffuser. The system's design is intended to ensure that the effluent will contain at least 7.0 milligrams per liter (mg/L) of dissolved oxygen prior to discharge into the San Joaquin River.

Outfall Structure and Gravity Line. The river outfall will consist of a submerged structure parallel to flow of river located just off the east shore of San Joaquin River and approximately 560 feet upstream of the Harding Drain. The structure will be a 24" concrete encased pipe with 22 tangential 6" outlets. Each outlet will have a duckbill check valve installed at the end of the pipe. The outfall will be approximately 75 feet long with a 3.5-foot square cross section supported by piles just above the river bottom. The current configuration is subject to approval by the Reclamation Board and U.S. Army Corps of Engineers (ACOE); and therefore is subject to change pending final design. A general schematic of the outfall structure is provided in **Figure 2-5**.

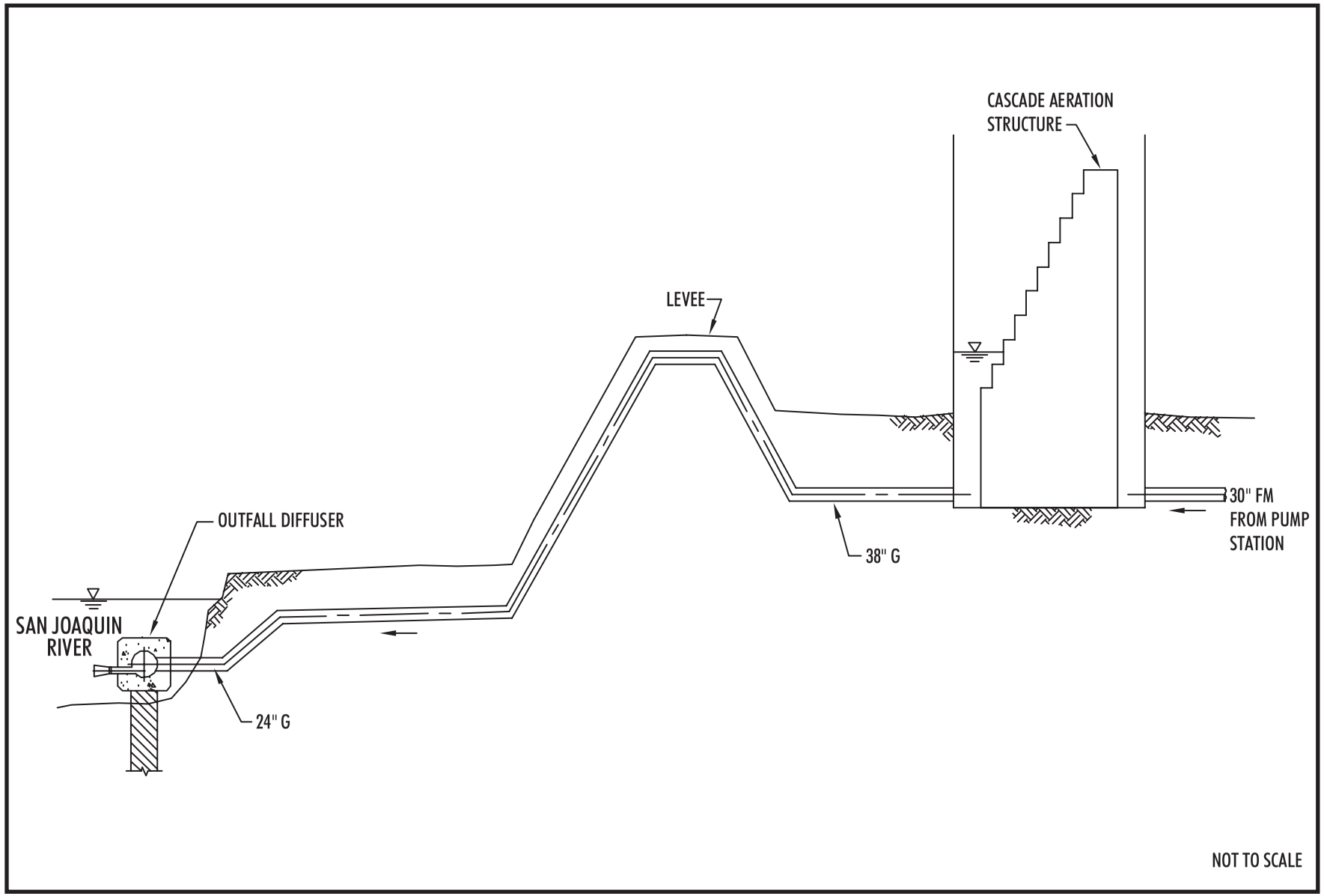
The outfall pipeline between the aeration structure and the river diffuser is a gravity flow section. The preliminary hydraulic profile indicates that trenching over the top of the levee appears feasible, as shown in **Figure 2-4**. However, hydraulic constraints may force the City to bore under the levee. As proposed, the pipeline will be trenched over the top and consist of a pair of pipes to keep the depth of cut to a minimum. However, if hydraulic constraints render trenching over the top infeasible, the City will bore a single 48" to 54" diameter pipeline under the levee. A permanent easement of up to 50 feet will be required for the gravity outfall pipeline.

Pump Station. A pump station will be constructed on a lot to be purchased by the City located immediately southeast of the intersection of Prairie Flower Road and Harding Road (see **Figure 2-6**). The subject property is currently used for irrigated pasture. The pump station will operate on electricity and will eventually consist of six 250 horsepower (hp) vertical turbine pumps with five of the pumps operating 24-hours a day, seven days a week and the fourth primarily serving as back-up to the other five. Initially, four of the 250 hp pumps will be installed to pump a peak flow of 24 mgd. Two of these four pumps will be provided with variable frequency driver (VFD). The pump station structure will be designed so that two additional pumps can be installed



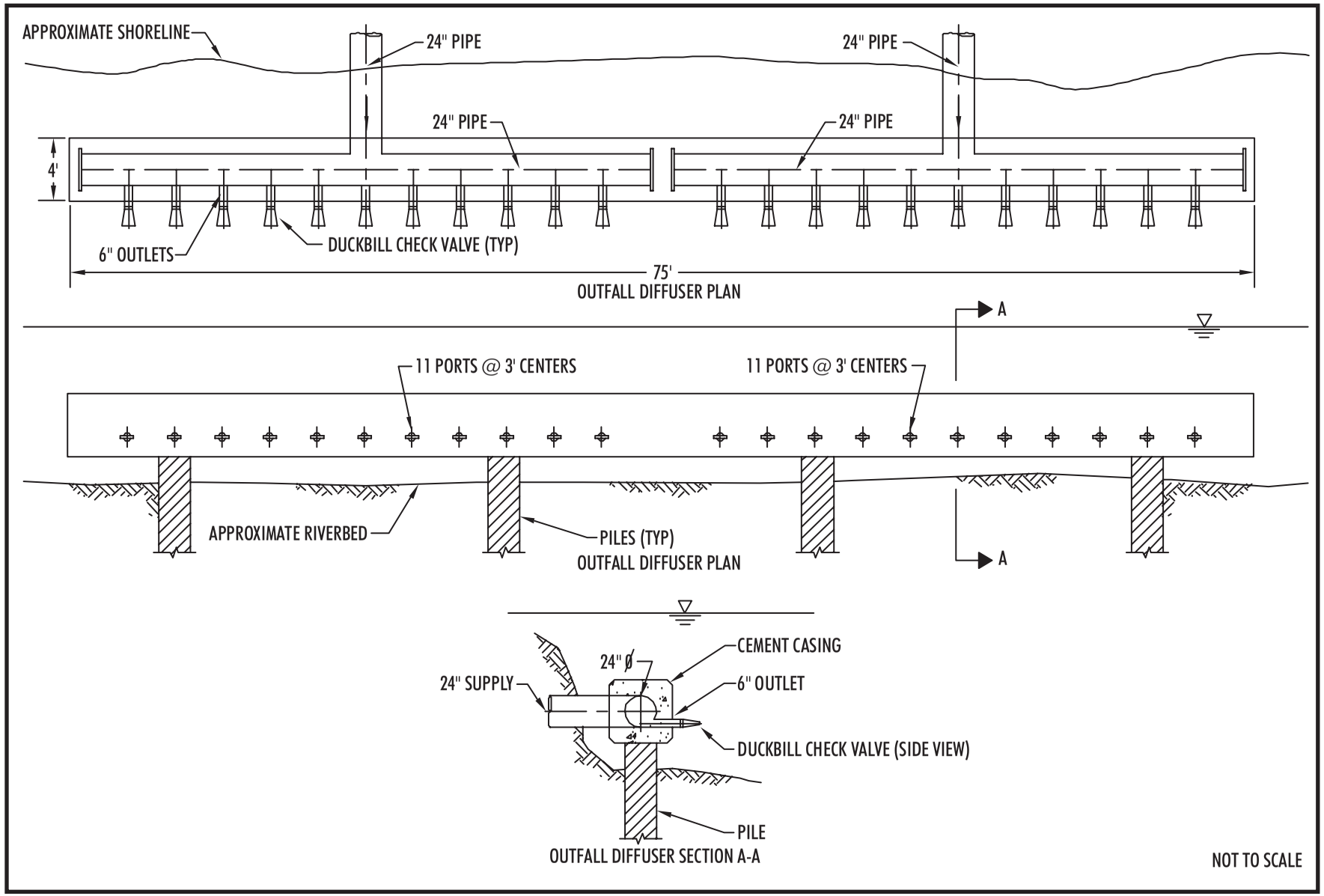
SOURCE: Carollo Engineers and Environmental Science Associates, 2004

Figure 2-3
Aeration Structure and
Outfall Footprint



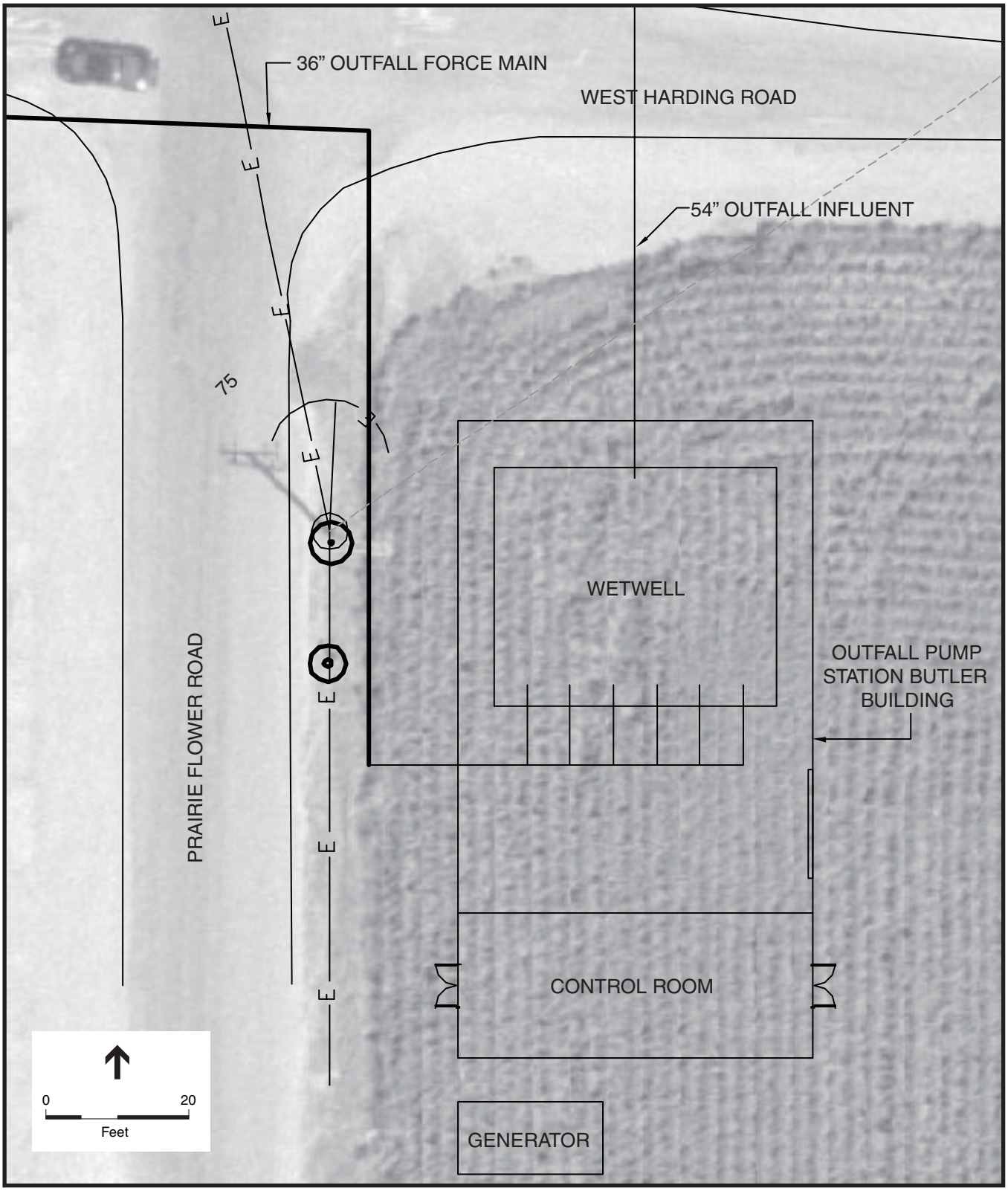
SOURCE: Carollo Engineers and Environmental Science Associates, 2004

Figure 2-4
Aeration Structure and
Outfall Schematic Cross Section



SOURCE: Carollo Engineers and Environmental Science Associates, 2004

Figure 2-5
Outfall Details



SOURCE: Carollo Engineers and Environmental Science Associates, 2004

Figure 2-6
Proposed Pump Station Footprint

in 20 years to meet the projected 35 mgd future peak flow. A small standby generator will be installed in an enclosure to operate one pump during a power outage. The pumps will be mounted in a concrete wet well fed by gravity flow from the WQCF. The existing twin 36 feet gravity outfall pipes will be intercepted and rerouted to the new pump station.

The City will purchase up to one-acre for the siting of the pump station. This will require County approval for a conditional use permit. A metal prefabricated building with a gable roof to resemble nearby structures will enclose the pump station. The approximate footprint of the pump station is depicted in **Figure 2-6**. Its construction will include sound panels to muffle noise generated during operation.

One pump will be started with a standby generator to drain the existing twin 36-inch gravity outfalls from the WQCF. In the event of a power failure, flow from the WQCF will be diverted to existing storage ponds at the WQCF.

2.5 CONSTRUCTION AND OPERATIONS

CONSTRUCTION

Construction Scheduling and Project Phasing

Construction of the project facilities would begin in fall 2004. The construction schedule for the pipeline facilities would vary, but would progress at a rate of approximately 700 to 1,000 feet per day. The duration of construction is anticipated to last 12 to 18 months.

Construction Methods

Pipeline System Construction. The new pipeline facilities would be installed in existing and, in limited instances, newly acquired ROWs and would be completely buried. Manholes or buried blind flanged tees would be installed at regular intervals (approximately ¼ to ½ mile) to provide access for sampling testing, inspection, maintenance, and repair. A few isolation valves (used to close segments of the pipeline) may be installed at regular intervals to close off segments of the pipeline for maintenance, repair, and emergency in breakage situations.

To consider the highest impact scenario for the EIR analysis, it has assumed that maximum pipeline diameter (36 inches) would be constructed. Installation of the pipeline would require a permanent easement and an additional construction easement. Generally, permanent easements are three times the width of the trench. A temporary easement of up to 50 feet outside the County road ROW will be obtained except for narrower sections to reflect the available ROW. A 60-foot construction easement will also be required on the Northeast corner of Harding Road and Prairie Flower Road to intercept existing outfall gravity pipeline and connect to pump station on the Southeast corner of the intersection. Based on preliminary engineering designs, the proposed pipeline would be constructed through a combination of open trenching and bore and jacking.

Staging Areas. At various locations along the construction route, staging areas will be required to store pipe, construction equipment, and other construction related material. Staging areas would be established along the route(s) where space is available, such as vacant lots, parcels, or parking lots. In some cases, staging areas may be used for the duration of project construction. In other cases, as pipeline construction moves along the route, the staging area will be moved to minimize hauling distances and avoid disrupting any one area for extended periods of time. Potential staging areas include vacant private and public land and parking lots. Staging areas will not be located in sensitive habitat areas unless they would be permanently lost due to subsequent development or facility siting.

Open Trench Installation. Various sections of the pipeline would be installed in open trenches using conventional cut and cover construction techniques. The key steps in the construction process are:

- Surface Preparation
- Trench Shoring
- Excavation
- Pipeline Installation
- Trench Backfilling
- Surface Restoration

The main pieces of equipment used may include:

- Track mounted excavators
- Backhoes
- Cranes
- Compactors
- End and bottom dump trucks
- Front-end loaders
- Ten-wheel dump trucks
- Water trucks
- Pavement equipment
- Flat-bed delivery trucks
- Forklifts
- Concrete trucks
- Compressors/jack hammers

The typical pipeline crew size at any one time will be about 10–12 workers plus inspectors. Each step in the pipeline construction process is briefly described below.

Surface Preparation. This involves removing any structures (such as fences), pavement and/or vegetation from the surface of the trench area. Equipment used for this activity includes jack hammers, pavement saws, mowers, graders, dozers, loaders, and trucks.

Trench Excavation/Shoring. A backhoe or excavator would be used to dig trenches for pipe installation. In most cases, such as in streets, trenches would have vertical side walls in order to minimize the amount of soil excavated and area needed for the construction easement. Soil excavated from the trenches, if of suitable quality, would be stockpiled alongside the trench or in

staging areas for later reuse in backfilling the trench, if appropriate. If not reusable, the soil would be hauled offsite for disposal. Disposal options include use as cover material at sanitary landfills and use as "clean fill" at other yet to be determined sites. During the June 2003 scoping sessions, a number of property owners also expressed interest in acquiring these excess soil materials.

For the purposes of analysis, trench sizes during construction are assumed to average eight to nine feet in depth and six feet in width. In accordance with Occupational Safety and Health Administration (OSHA) regulations, shoring is required to protect workers from trench failure and cave-ins for trenches more than five feet in depth. Trench shoring may be generally accomplished in one of three ways: 1) by use of a shield or trench box (a steel-walled box which is moved along the trench as installation proceeds); 2) speed-shores, which consist of two steel plates which are braced against opposing trench walls (generally by a hydraulic mechanism); or 3) sheet piling installed with a pile driver or excavator. Sheet piling is generally used if the shoring must remain in place permanently, or in difficult construction areas. In lieu of shoring, a "V" cut trench may be allowable.

Pipeline trenches, in any given location, would be open for two to three days on average. During construction, vertical wall trenches would be temporarily "closed" at the end of each work day, either by covering with steel plates or backfill material, or installing fences to restrict access. Levee and certain TID lined canal crossings will be trenched in compliance with the applicable encroachment permit. TID lined canals will be crossed during the non-irrigation season. For the San Joaquin levee crossing, the trench will be excavated to the depth necessary to support the installation of the outfall pipelines. The outfall pipelines will be enclosed in concrete and soil below and above the concrete encasement will be compacted under the supervision of a licensed geotechnical engineer. This is the Reclamation Board's preferred method, however is subject to change.

Trench Backfill. Dump trucks would be used to deliver imported backflow material to stockpiles near the trenching operation. Native soil will be reused for backfill to the greatest extent possible; however, it may not have the properties necessary for compatibility and stability. Backfill material would be placed in layers around and over the pipe. A vibratory compactor and jets of water would then compact and consolidate the fill material. This process would be repeated in approximately 6 to 12-inch layers until the trench is filled to its original level. The final 6 to 12-inch layer below the surface may consist of crushed aggregate base material for areas to be repaved.

Surface Restoration. The final step in the installation process is to restore the surface. Where the pipe is installed in a paved roadway, repaving is the final step. New asphalt or concrete pavement would be placed to match the surrounding road type. For asphalt repaving, temporary asphalt material may be installed to allow traffic to use the roadway immediately after construction. A crew would follow the pipe installation crew and prepare the road surface for repaving. Final repaving would be done after pipe installations were complete for a whole street or street segment. This would typically be two to five weeks after pipeline installation. For

unpaved surfaces, restoration would generally involve replanting with annual grasses or native vegetation. The City does not replant woody vegetation in utility line easements, because woody vegetation impedes maintenance activities. For pipelines which are located on private property (including agricultural lands) in the utility easement, non-woody revegetation would be installed at the discretion of the property owner. For pipelines in agricultural areas, topsoil would be stockpiled and replaced to ensure continuous agricultural production. Disturbed crop areas will be laser leveled to approximate pre-construction conditions.

Bore and Jacking. During construction, the force main will cross underneath the Harding Drain at three locations and beneath four roads by bore and jacking. The locations of these borings are illustrated in **Figure 2-2**. This form of construction involves a tunneling method to install pipelines without disturbing the ground surface. Using this method, pits are dug on each side of the segment to be tunneled. A horizontal boring device is set up in one of the pits. An auger is then used to drill under the segment, and a pipe is simultaneously pushed or "jacked" through the borehole. In general, the two pits on each site of the crossings will be 20 feet deep 12 feet wide for the Harding Drain and 10 feet deep 12 feet wide for roadways. The length of bore for the Harding Drain crossings is approximately 60 to 70 feet and 45 feet for road crossings.

Other Proposed Construction Methods

Detailed below are other proposed construction methods and best management practices that will be incorporated into the Proposed Project and mitigation monitoring and reporting program in order to minimize potential adverse impacts.

- The pipeline alignment will avoid existing housing and other significant structures to the extent feasible.
- Temporary and permanent easements as well as compensation for any property acquisition, loss, or damage will be at fair market value and resolved prior to initiating construction activities.
- All drainage patterns and grades will be returned to preconstruction conditions.
- Comprehensive subsurface geotechnical investigations will be prepared by a licensed geotechnical engineer prior to final design and construction of all project facilities to evaluate unstable and corrosive soil conditions, shrink/swell potential, and earthquake fault and related geologic hazards. All Proposed Project facilities will be constructed in accordance with applicable (2000) Uniform Building Code (UBC) requirements for Seismic Hazard Zone 3.
- In accordance with California Department of Health Services Bulletin 79, a minimum separation of 50 feet will be maintained between the sewer line and any adjacent domestic well. Based on review to date, there does not appear to be a well within 50 feet of the proposed force main and outfall. Nonetheless, as part of the project's design, the location of all wells within 75 feet of the proposed pipeline alignment shall be determined. If any well is within the 50-feet separation, the relocation of the pipeline or well, or other method as approved by the California Department of Health Services or Stanislaus County

Department of Environmental Resources will be planned to achieve at least the 50-feet minimum.

- Standard dust abatement measures will be implemented during construction to reduce air quality impacts from construction activities. Construction practices will incorporate best management practices and best available control technology as identified in San Joaquin Valley Air United Pollution Control District (SJVUAPCD) *Guide for Assessing and Mitigating Air Quality Impacts*.

- Standard erosion control measures and best management practices will be identified in a Storm Water Pollution Prevention Plan (SWPPP) and will be implemented during construction to reduce sedimentation of waterways and loss of topsoil. Topsoil will be stockpiled and replaced at the conclusion of construction activities. Dewatering activities associated with the construction of the outfall structure will comply with the project SWPPP.

- During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other materials that could serve as fire fuel. Any construction equipment that normally includes a spark arrester will be equipped with an arrester in good working order.

- Appropriate traffic routing measures will be specified and implemented to reduce traffic delays in areas in or near construction activities, comply with loads and capacities of roads, avoid conflicts with other road uses (such as movement of farm machinery), allow for emergency access, and minimize noise impacts from construction-related vehicle trips. In addition, temporary parking areas will be designated for construction-related vehicles. All paved surfaces distributed during construction will be returned to pre-project conditions.

- In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resource(s) will be halted and the City shall consult with a qualified archaeologist or paleontologist to assess the significance of the find.

2.6 PERMITS AND SUBSEQUENT AGENCY APPROVALS

As the lead agency, the City would certify the final EIR for the Proposed Project and, based on the final EIR, would determine whether to approve or disapprove the Proposed Project. A preliminary description of other permits and approvals that may be required for the Proposed Project is provided below and outlined in **Table 2-1**. Agencies with jurisdiction over those permits or approvals would consider the information provided in the final EIR in determining whether and under what conditions to issue permits or approvals.

2.6.1 CLEAN WATER ACT SECTION 404 AND RIVERS AND HARBORS ACT SECTION 10 PERMIT

The ACOE acts under two statutory authorities, the Rivers and Harbors Act (Sections 9 and 10) which governs specified activities in “Navigable Waters of the U.S.,” and Section 404 of the Clean Water Act (CWA), which governs specified activities in “other waters of the United States,” including wetlands. ACOE requires that a permit be obtained if a project proposes

TABLE 2-1
PERMITS AND REGULATORY APPROVALS

Permit/Approval	Project Component	
	Force Main/Pump Station	San Joaquin River Outfall/Aeration Structure*
CWA Section 404/Section 10 Permit	X	X
USFWS and NOAA Fisheries Consultation		X
Section 106 Compliance	X	X
CWA Section 401 Certification	X	X
Streambed Alteration Agreement	X	X
State Lands Commission Lease		X
Reclamation Board Encroachment Permit	X	
Coast Guard Permit		X
State Water Resources Control Board, Division of Water Rights	X	X
TID Revocable License Agreement	X	
NPDES General Construction Permit (CWA Section 402)	X	X
NPDES Individual Permit Amendment	X	X
NPDES Dewatering Permit	X	X
SJVUAPCD Regulation VIII-Fugitive Dust Control, Rule 8010	X	X
Stanislaus County Excavation / Road Encroachment Permit	X	
Stanislaus County Approval for Conditional Use Permit	X	X

* Note – Includes installation of the gravity connector pipeline.

CWA = Clean Water Act
USFWS = U. S. Fish and Wildlife Service
SWRCB = State Water Resources Control Board
NPDES = National Pollution Discharge Elimination System
SJVAPCD =San Joaquin Valley Air Pollution Control District

Source: ESA, 2004

placing structures within, over, or under navigable waters and/or discharging dredged or fill material into “waters of the U.S.” below the ordinary high-water mark in non-tidal waters.

The Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries), and several other agencies provide comment on ACOE permit applications. This includes state agencies such as the California Department of Fish and Game (CDFG), commenting under the Fish and Wildlife Coordination Act; and the State Water Resources Control Board (SWRCB),

which, acting through the appropriate RWQCB, must certify that a ACOE permit action meets state water quality objectives under Section 401 of the CWA (as discussed below).

Wetlands and other waters of the U.S. (as defined in Section 3.2, Biological Resources) are subject to jurisdiction by the ACOE and EPA. Wet areas that are not regulated include stock watering ponds; agricultural ditches created in upland areas; and isolated wetlands that do not have a hydrologic link to other waters of the U.S., either through surface or subsurface flow. Under the permit program, ACOE has the option to issue a permit on a case-by-case basis (individual permit) or at a program level (general permit). Nationwide permits (NWPs) are an example of general permits; they cover specific activities that generally have minimal environmental effects. Activities covered under a particular NWP must fulfill several general and specific conditions, as defined by the NWP. If the Proposed Project cannot meet these conditions, an individual permit may be required.

Most of the agricultural canals that will be crossed under the Proposed Project are not subject to jurisdiction of the ACOE. However, the proposed submerged outfall diffuser and gravity pipeline would be located within the San Joaquin River and may be subject to ACOE jurisdiction. Other canals and water features that would be crossed by the Proposed Project may also ultimately be determined to be subject to the jurisdiction and permitting authority of ACOE. The placement of the outfall diffuser and gravity pipeline may be covered under a NWP 12, for utility lines and a NWP 7, which covers outfalls.

2.6.2 SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Section 106 of National Historic Preservation Act (NHPA) requires a federal agency with jurisdiction over a federally funded, federally assisted, or federally licensed activity to consider the effects of the agency's action on properties listed or eligible for listing in the National Register of Historic Places (NRHP) (16 United States Code [USC] 470 *et seq*.). The Proposed Project may require compliance with Section 106 if compliance with the Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act.

2.6.3 USFWS AND NOAA FISHERIES CONSULTATION

Under the federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 USC, Section 1533[c]). Pursuant to the FESA, a federal agency reviewing a proposed project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and whether the project is likely to adversely affect such species in a manner that jeopardizes the continued existence of the species or results in the destruction or adverse modification of its critical habitat. In addition, the federal agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species [(16 U.S.C. § 1536(a)(3) & (a)(4)].

USFWS and NOAA Fisheries also designate species of concern. Species of concern receive attention from federal agencies during environmental review, although they are not otherwise protected under FESA.

Section 7 of the FESA requires all federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or result in the destruction or adverse modification of the critical habitat of any listed species. Federal agencies must consult with USFWS and/or NOAA Fisheries to determine the potential for impact on these species, and if necessary, alter the Proposed Project to minimize its impact. Section 7 consultations may require preparation of a Biological Assessment (BA) by the federal agency, and a Biological Opinion (BO) by USFWS or NOAA Fisheries. Formal Section 7 consultation typically takes 60 to 135 days from initiation.

Where the Proposed Project requires a discretionary approval from a federal agency (for example, a section 404 approval from the USACOE), the ACOE would consult/confer with USFWS and/or NOAA Fisheries as required by section 7 of the FESA

2.6.4 CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION

Section 401 of the CWA requires that federal permits not violate effluent limitations or water quality standards established by the state and ensure that the permit action complies with the federal CWA. The Section 404/Section 10 permit described above would trigger this requirement, and the ACOE may not authorize a project under Section 404 of the CWA until the permit applicant has obtained a certification of compliance with state water quality standards (i.e., a water quality certification) from the applicable RWQCB (Region 5 - Central Valley). To obtain this certification, the applicant must fill out an application form, provide a project description and maps, and enclose the required fee. As part of the application for the water quality certification, evidence of compliance with CEQA and a Section 1601 Streambed Alteration Agreement would have to be provided.

2.6.5 SECTIONS 1601–1607 STREAMBED ALTERATION AGREEMENT

The California Fish and Game Code Sections 1600–1607, require the notification of the CDFG for any activity that could affect the bank or bed of any stream that has value to fish and wildlife. This includes projects that would obstruct the flow of, or alter the bed, channel, or bank of, a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams. CDFG's jurisdictional boundaries are identified as the top of the stream or bank, or at the outer edge of the riparian vegetation, whichever is widest. Since riparian habitats do not always support wetland hydrology or hydric soils, federal Section 404 wetland boundaries sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake that fall under CDFG jurisdiction. Upon notification, the CDFG has the responsibility to prepare a Streambed Alteration Agreement (SAA), in consultation with the project proponent, and develop mitigation measures. The Proposed Project includes the placement of an outfall into the San Joaquin River and may require CDFG notification.

To apply and/or notify CDFG of the proposed project activity within their jurisdiction, the applicant must complete and submit form FG 2023 to the regional Fish and Game office. The regional office will assign the application to a local warden who will determine whether an on-site inspection is necessary in order to suggest modifications or conditions for the Agreement. The warden may conduct the inspection with the applicant and, when appropriate, with district fishery and wildlife biologists. The biologists attending the inspection may provide recommendations or modifications for projects that could cause environmental damage or threaten fish or wildlife resources.

The warden may request additional information but must make recommendations on the proposed activity to the applicant within 30 days of receipt of the completed form FG 2023, unless extended by mutual agreement. After the inspection, the warden may suggest modifications and mitigation measures to protect fish and wildlife in the project area. The applicant has 14 days to accept or deny these modifications. Upon agreeing to the warden's proposed project modifications, the applicant signs the Agreement and returns it to the warden. If rejecting the warden's modifications, the applicant must site the reasons in writing or request a meeting with the warden. When the applicant and CDFG agree to the project modifications, they sign the SAA and the applicant may begin the approved project.

2.6.6 STATE LANDS COMMISSION LEASE

The State Lands Commission (Commission) may lease or otherwise manage the use of sovereign tidelands, submerged lands, and beds of navigable waterways under its jurisdiction. Anyone proposing to use such state-owned sovereign lands must first obtain a land use lease from the Commission. Because the San Joaquin River is under the Commission's jurisdiction, the City may need to obtain such a lease for construction of the proposed outfall and gravity pipeline.

The Commission evaluates applications for land use leases to determine whether the proposed activity:

- Is consistent with the various trusts under which the lands are held;
- Is acceptable environmentally;
- Will affect the value of state lands; and,
- Will be in the best interest of the People of California.

No later than 30 calendar days after the Commission receives an application for a development project, the staff will notify the applicant (henceforth, the "City") in writing whether the application is complete. The Staff of the Commission shall deem an application complete if:

- The data submitted is sufficient to allow the staff of the Commission to locate and describe the nature and extent of State-owned land to be utilized in the project;

- The applicant submits all deposits, fees, and executed reimbursement agreements required by the Commission;

- The applicant submits environmental data sufficient for the Commission to determine the level and scope of environmental review required under CEQA and the State CEQA Guidelines;
- The applicant submits data sufficient for the State to determine the fair rental to be paid the State for the City' use of the State's property; and
- The data submitted by the applicant is sufficient to allow staff of the Commission to begin an analysis to determine if the application is: (a) consistent with Commission policies, practices and procedures; (b) conducive to public access; (c) consistent with environmental safeguards and policies of the State; and is (d) otherwise in the best interest of the State.

If the application is determined to be incomplete, the staff will specify what additional information is required. Upon receiving any additional material, the staff will respond within 30 days as to whether the application is complete. Should the applicant fail to provide a complete application within a reasonable period of time, the file may be closed and all or any part of the fees retained by the Commission.

After an application is deemed complete, the applicant may be required to submit additional information to clarify, amplify, correct, or otherwise supplement the information requested in the application form. The staff will then take the necessary steps to process the application, including but not limited to title work, land description, and appraisals. In most cases, many of the terms and conditions of a Commission lease, permit, or entitlement are subject to negotiation on a case by case basis. Once the terms and conditions have been agreed to and the applicant has executed the lease, permit, or entitlement, the staff will schedule the item for consideration by the Commission. The Commission usually meets one day per month. Items to be considered by the Commission must be finalized at least one month prior to the scheduled meeting in order for the item to met applicable legal notice requirements.

2.6.7 RECLAMATION BOARD ENCROACHMENT PERMIT

Construction of the proposed pipeline and outfall will require work within the levees/banks and bed of the San Joaquin River. Projects or uses that encroach into rivers, waterways, and floodways within and adjacent to federal and State-authorized flood control projects, and within designated floodways adopted by the State Reclamation Board (Board) must be approved by the Board. Approval is required prior to the initiation of certain uses or construction work on any proposed project within these areas.

The Board exercises jurisdiction over the levee section. This section is defined by the waterward area between project levees, a 10-foot-wide strip adjacent to the landward levee toe within 30 feet of the top of the banks of unleveed project channels and within designated floodways adopted by the Board. Activities outside of these limits, which could adversely affect the flood control project area, are also under Board jurisdiction.

Upon receipt of an application, a general review is made to determine if it is adequately complete to begin processing. If the application is found to be complete, it will be assigned a number and a

letter will be sent to the applicant acknowledging receipt of the application. The Board will send a notice of the pending application to the adjacent property owners. If, during the review process, the application is found to be incomplete, it will be returned or the applicant will be advised by letter of the deficiencies in the application. If these deficiencies are not corrected within a reasonable time limit, processing of the application will be terminated. The applicant may be notified of a need for additional studies. The Board staff performs some level of environmental review of the potential impacts of the proposed project or use. A copy of the application is sent to the ACOE for review and comment. The project or activity described in the permit issued on each approved application is subject to 12 general conditions. A number of special conditions may be added to the approved permit depending on the nature of the proposed activity.

2.6.8 COAST GUARD PRIVATE AIDS TO NAVIGATION PERMIT

The U.S. Coast Guard administers the U.S. Aids to Navigation System (33 Code of Federal Regulations [CFR] Part 62). This system requires a permit from the Coast Guard for placement of structures in navigable waterways that could obstruct or pose a hazard to navigation. As part of the project, such a structure would be appropriately marked. The San Joaquin River outfall may be subject to this permit requirement. To apply for the permit, the City must complete Form PBFC-227 at least 30 days prior to onset of construction.

2.6.9 STATE WATER RESOURCES CONTROL BOARD, DIVISION OF WATER RIGHTS

The Proposed Project would change the point of discharge for the City's treated wastewater from the Harding Drain, an artificial irrigation drain, to the San Joaquin River. The change will not reduce flow in any portion of the San Joaquin River or any other natural watercourse, however, the State Water Resources Control Board has directed the City to file a petition to change the point of discharge pursuant to Water Code Section 1211, and the City will file the petition as directed. The State Board will rely on this EIR as a responsible agency in reviewing the petition pursuant to Section 1211, under which the petition must be approved if the proposed change is not likely to injure any other "legal user of water" within the meaning of Water Code Section 1700 et seq.

2.6.10 NPDES GENERAL CONSTRUCTION PERMIT

The Central Valley RWQCB administers the NPDES stormwater permitting program in the Central Valley Region for construction activities. Construction activities disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). For qualifying projects, the project applicant must submit a Notice of Intent to the RWQCB to be covered by the General Construction Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a SWPPP, which must also be completed before construction begins. Implementation of the plan starts with

the commencement of construction and continues through the completion of the project. Upon completion of the project, the applicant must submit a Notice of Termination to the Regional Board to indicate that construction is completed.

The disturbance area associated with construction of the Proposed Project is anticipated to exceed the threshold requiring coverage under the General Construction Permit.

2.6.11 INDIVIDUAL NPDES PERMIT

All point source dischargers to waters of the United States not governed by a general permit are required to apply for an individual NPDES permit with the Regional Board, unless a specific exemption or waiver is provided. The Regional Board then issues an NPDES permit and waste discharge requirements (for any requirements specific to discharges into waters of the State), along with monitoring provisions to ensure compliance.

As discussed above, the City's WQCF is currently regulated by Regional Board Order 5-01-122, which requires the City to comply with newly imposed discharge requirements by May 2006. Since the Proposed Project intends to cease discharge to the Harding Drain and, instead, discharge directly to the San Joaquin River through a new proposed pipeline upstream of the current discharge point, in accordance with Regional Board Order 5-01-122 and federal regulation, the City will notify the Regional Board of the new discharge location and seek a permit amendment to reflect the new location.

2.6.12 TID REVOCABLE LICENSE AGREEMENT

TID's jurisdiction includes numerous right-of-ways within the project area consisting of a vast system of irrigation and drainage canals. Any work within the right-of-way of a TID corridor is subject to TID Engineering Standards governing allowable actions, facility crossing, required inspections, and modifications to the right-of-way. TID issues revocable license agreements (RLA) to encroach on land within their jurisdiction to ensure encroachment is compatible with the primary uses of the irrigation system, ensure safety, and to protect the TID's investment in the irrigation system. The encroachment permit requirement applies to persons, corporations, cities, counties, utilities, and other government agencies. The various sections of the proposed alignment that cross TID canals may require individual encroachment permits.

2.6.13 STANISLAUS COUNTY

Prior to any excavation or construction of a pipeline upon or across a county highway or other public place, the City will apply for and obtain a permit from the County road commissioner. Likewise, construction of the proposed pump station may require approval of the County Planning Department for a conditional use permit. The project's consistency with applicable County land use policy is discussed and evaluated in Chapter 3.0 of the EIR (3.4 – Land Use and Agriculture).

CHAPTER 3.0

ENVIRONMENTAL ANALYSIS

CHAPTER 3.0

ENVIRONMENTAL ANALYSIS

INTRODUCTION TO THE ANALYSIS

Chapter 3.0 of this Draft EIR contains individual sections that describe the potential environmental impacts of the Proposed Project. Each topical section (3.1 through 3.11) describes the existing setting and background information necessary to help the reader understand the conditions that could be affected by the project. In addition, each section includes a discussion of the criteria used in determining whether the effects of the project are considered "significant" based on the given environmental context. Finally, the individual sections recommend mitigation measures, where appropriate, to avoid or reduce any potentially significant impacts.

SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

According to CEQA, an EIR should define the thresholds of significance and explain the criteria used to determine whether an impact is above or below the specified threshold. Significance criteria are identified for each environmental category to determine if implementation of the project will result in a significant environmental impact when evaluated against the existing environmental conditions (baseline condition). The significance criteria vary depending on the environmental category. In general, effects can be either significant (above threshold), or less than significant (below threshold).

SETTING, IMPACTS, AND MITIGATION MEASURES

Pursuant to CEQA *Guidelines* Section 15125, an EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation is published. The setting is presented from site specific, local, and/or regional perspectives, as appropriate to each environmental topic. According to CEQA *Guidelines*, the effects of the project are defined as changes to the environmental setting that are attributable to the project.

In describing the relative significance of project impacts, each impact is identified to be potentially significant, significant, cumulatively significant, significant unavoidable, less-than-significant, or beneficial. The cumulative impact analysis in this EIR is based on the implementation of the Proposed Project as well as approved and anticipated projects in the project area. A summary of cumulative impacts is provided in Chapter 5.0.

According to the CEQA *Guidelines* Section 15382, a significant effect on the environment means "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" For each category of physical condition evaluated in this EIR, criteria for significance have been developed using criteria discussed in the CEQA *Guidelines*; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals, objectives, and consistency of the policies identified in the General Plans of the City of Turlock and Stanislaus County.

Mitigation measures identified in this Draft EIR are characterized in one of three categories: 1) measures necessary to reduce the identified impact below a level of significance; 2) measures recommended to reduce the magnitude of a significant impact, but not below a level of significance; and 3) measures recommended to reduce the magnitude of a less-than-significant impact. Where implementation of more than one mitigation measure is needed to reduce an impact below a level of significance, this fact is noted.

3.1 WATER RESOURCES

3.1.1 SETTING

The Proposed Project is located in the San Joaquin Valley, which is characterized by cool, wet winters and dry, warm summers. The majority of the annual precipitation occurs from December through April, with approximately 11 inches of rainfall per year. The 10-year, 24-hour estimated precipitation amount is approximately 1.9 inches and the 100-year, 24-hour precipitation amount is approximately 2.75 inches for the project area (Western Regional Climate Center, 1973).

HYDROLOGY

Surface Water

The project area is located within the Turlock watershed (Hydrologic Subarea 535.50), part of the San Joaquin River Basin (Basin). The Basin covers 15, 880 square miles, with its major river systems consisting of the San Joaquin River and its larger tributaries, the Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno rivers (Regional Board, 1998). Within this basin, both groundwater and surface water (streams and reservoirs) are significant water sources for both urban and agricultural users.

The San Joaquin River drains to the Sacramento-San Joaquin River Delta (Delta). The Delta drains surface waters from the San Joaquin and Sacramento River watersheds and subsequently empties into the San Francisco Bay. The Delta system is generally regarded as the most important water body in California. It is used extensively for both recreational and commercial purposes, supports diverse flora and fauna, and provides most of the State's agricultural and urban water.

The San Joaquin River delineates the western extent of the Proposed Project. Flows in the San Joaquin River vary widely throughout the year and between years based on season and rainfall, as well as being influenced by upstream dams and diversions. Typically, the flow is highest during the winter and spring months and lowest in the summer and late fall. **Table 3.1-1** shows data from the Newman gauging station on the San Joaquin River, located approximately nine miles upstream of the Harding Drain at Hills Ferry (immediately downstream of the confluence between the San Joaquin and Merced Rivers). In this section of the river, the 10-year average flow is 2,237 cubic feet per second (cfs) [approximately 1.6 million acre-feet (af) per year], with 10-year minimum and maximum flows of 106 cfs and 24,920 cfs, respectively. In 2000, the maximum stream flow at the Newman gauging station was 6,500 cfs on March 2, 2000; the minimum flow was 327 cfs on October 1, 2000 (USGS, 2002).

TABLE 3.1-1
SAN JOAQUIN RIVER FLOWS
AT NEWMAN GAUGING POINT

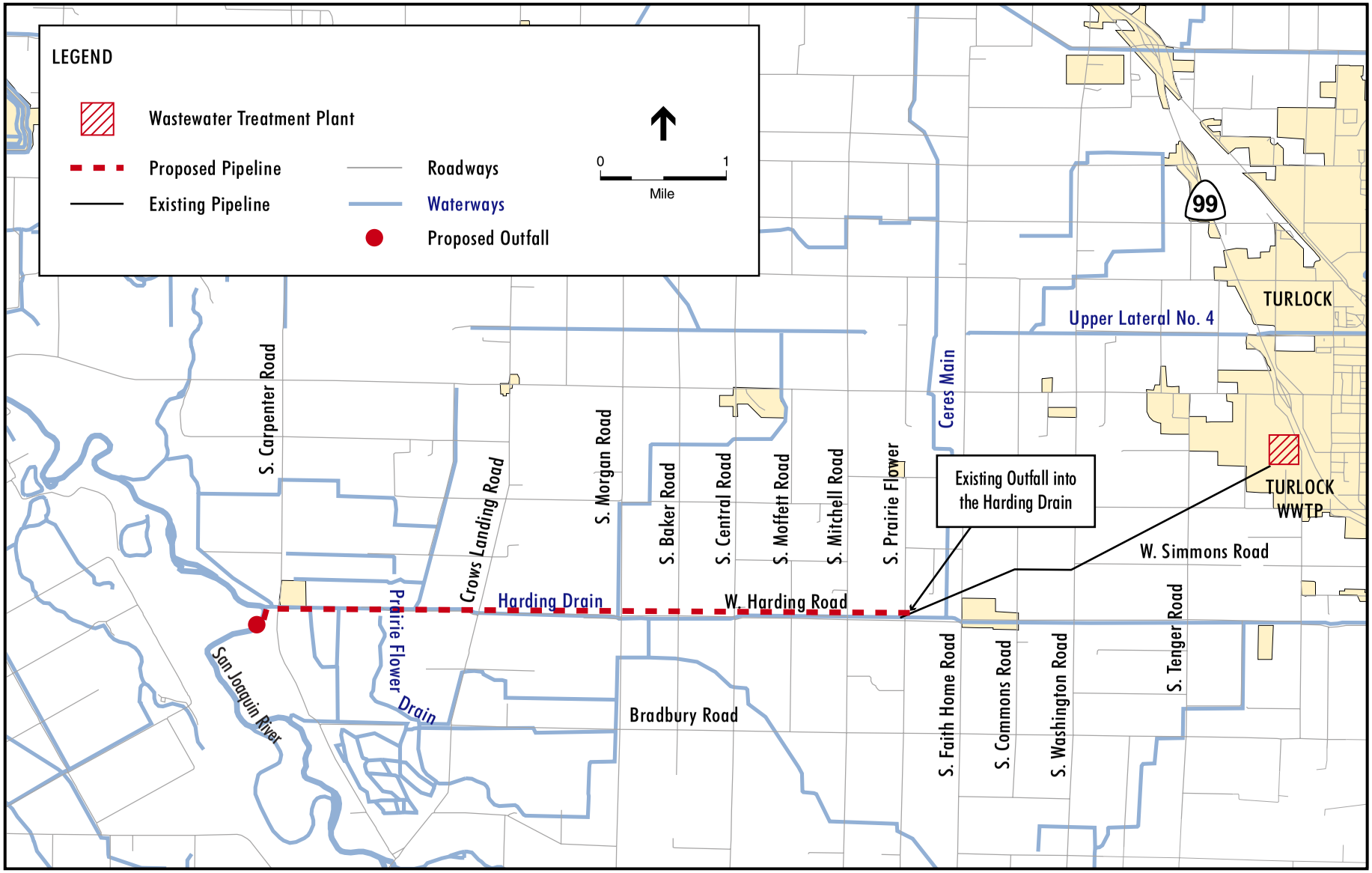
Year	Minimum Monthly Average (cfs)	Maximum Monthly Average (cfs)	Monthly Mean (cfs)
1991	121	967	294
1992	106	889	336
1993	669	2,289	1,181
1994	235	1,056	555
1995	955	13,139	4,754
1996	632	5,823	2,075
1997	396	24,920	4,640
1998	1,002	14,729	6,193
1999	447	2,609	1,056
2000	405	4,199	1,286
10-Year Average	**496.8**	**7,060**	**2,237**

Source: USGS, 2002

There are few natural drainage channels in the nearly level terrain found in the project area. Most surface water in the immediate project area travels though a network of canals, laterals and drains operated by TID that drain into the San Joaquin River. These canals vary from unimproved dirt ditches to concrete-clad canals. The modified hydrologic regime through this system provides water for agriculture, industry, residences, freshwater habitats, and recreation. In 1998, TID distributed approximately 578,993 acre-feet to its service area. Canals that will be crossed by the proposed pipeline are shown in **Figure 3.1-1**, and include TID Lateral No. 5 (Harding Drain), the Prairie Flower Drain and several smaller unnamed drainages.

Groundwater

The project area overlies a small portion of the Turlock Basin, which is part of the San Joaquin groundwater basin, a vast aquifer extending north and south through the Central Valley and consisting of unconsolidated sediments derived from the Coast Ranges and the Sierra Nevada Mountains. The Turlock Basin lies between the Tuolumne and Merced Rivers, and is bounded on the west by the San Joaquin River and on the east by the Sierra Nevada foothills. This aquifer provides water to many communities and is also used for agricultural purposes. The Turlock Basin contains three water-bearing zones: an unconfined/semi-confined aquifer, located in alluvial deposits, at a depth of 0 to 50 feet; a confined aquifer located in alluvium that is separated



SOURCE: Environmental Science Associates, 2003

Figure 3.1-1
Surface Water Features

from the previous aquifer by a layer of Corcoran Clay, at a depth of 100 to 200 feet; and a saline groundwater zone located beneath the fresh water deposits in the older marine sediments and rocks. The shallow, unconfined aquifer has poorer water quality than the lower, confined, water-bearing basin (City of Turlock, 1992; DWR, 1998).

Depth to groundwater varies across the project area, averaging from 6 to 20 feet below ground surface (bgs) during the period of 1990–2002 (DWR, 2002). Average well depths are shown in **Figure 3.1-2**. As exhibited in this figure, locations close to the San Joaquin River exhibit shallow depths to groundwater (<10 feet bgs in some areas). Historically, drainage wells have been utilized to lower groundwater levels in these areas to allow for the cultivation of deeper rooter crops. The water pumped from the drainage wells is discharged into the canal system where it is used for irrigation purposes, or drains into the river system.

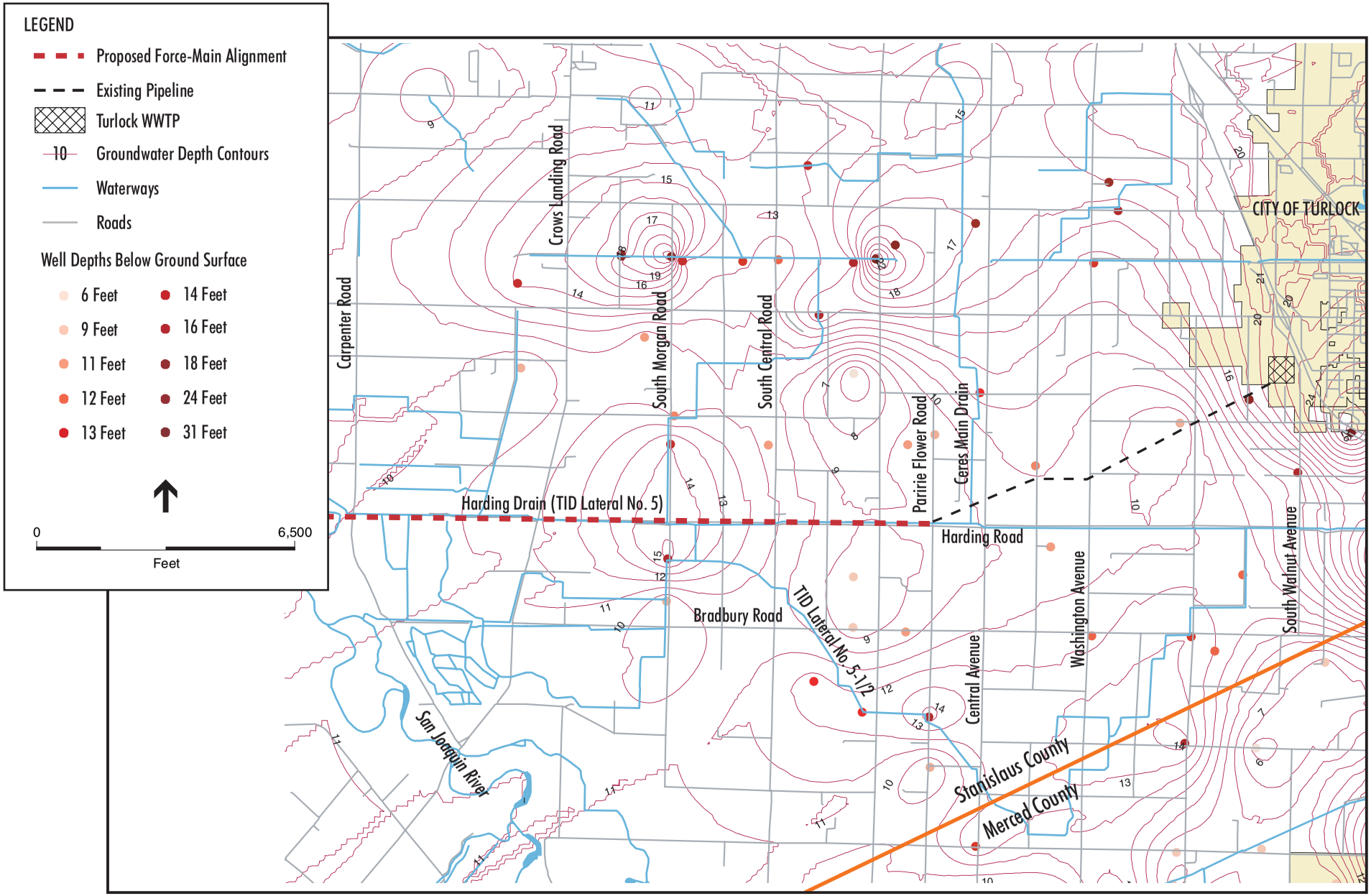
Changes in groundwater levels are tracked based on annual water level measurements by DWR and cooperators. Water level changes were evaluated by quarter township and computed through a custom DWR computer program using geostatistics (kriging). On average the Turlock subbasin water level has declined nearly seven feet from 1970 through 2000. The period from 1970 through 1992 showed a generally steep decline totaling about 15 feet. Between 1992 and 1994, water levels stayed near this low level. From 1994 to 2000, the water levels rebounded about 8 feet, bringing them to approximately seven feet below the 1970 levels. Water level declines have been more severe in the eastern portion of the subbasin after 1982. From 1970 to 1982, water level declines were more severe in the western portion of the subbasin. (DWR, 2002)

Groundwater resources in the project area are primarily replenished by percolation of surface and irrigation water, with recharge to the confined aquifer primarily from direct interflow from the top aquifer (City of Turlock, 1992). Much of the project area is designated in the Stanislaus County General Plan as a groundwater recharge area (Stanislaus County, 1994).

FLOODING

The Federal Emergency Management Agency (FEMA) provides information on flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps (FIRM). FEMA identifies designated zones to indicate flood hazard potential. In general, flooding occurs along waterways, with infrequent localized flooding also occurring due to constrictions of storm drain systems or surface water ponding. The San Joaquin River and its tributaries that flow through Stanislaus County form part of the drainage system for over 9,000 square miles covering southern portions of the Sierra Nevada and foothill region. High flows of moderate duration in these rivers and streams can result in flooding and can occur from intense rainstorms. In addition, snow melt in the Sierra can produce high flows of longer duration during the spring.

The proposed pipeline, near the San Joaquin River, passes through a narrow area protected from the 100-year flood by levees, but is subject to possible levee failure or overtopping during larger floods (Zone B). The proposed cascade aeration structure would also be located in Zone B. The outfall structure constructed on the riverside of the levee would be located within the 100-year



SOURCE: Environmental Science Associates, 2004

Figure 3.1-2
Groundwater Depths

floodplain of the San Joaquin River (Zone A). The remainder of the proposed alignment traverses areas designated on the FIRMs as outside of the 100-year floodplain (Zone C or X).

WATER QUALITY

Surface Water Quality

Surrounding land uses largely affect surface water quality, with both point-source and nonpoint-source discharges contributing contaminants to surface waters. A majority of the project alignment consists of agricultural land and dairy feed lots with scattered pockets of rural residences. Pollutant sources in residential areas include streets, roof tops, exposed earth at construction sites, and landscaped areas. Water quality impacts from construction are of particular concern. Grading for construction activity removes vegetation and exposes soil to wind and water erosion. Erosion can result in sedimentation that ultimately flows into surface waters. Other contaminants in urban runoff include sediment, hydrocarbons, metals, pesticides, bacteria, and trash. Runoff from agricultural areas is characterized by constituents such as fertilizers, herbicides, and pesticides, and often contains bacteria, high nutrient content and dissolved solids.

Generally, flows into local waterways (e.g., irrigation laterals and drains) during the dry season are entirely comprised of nonpoint source runoff. This is particularly true for the waterways in the project area, which mainly consist of agricultural return flows as well as irrigation water supplies. During the wet season, stormwater discharge conveys precipitation from areas of saturation or impermeable surfaces to low lying collection areas and drainages. “First flush” storm events, during which pollutants that have accumulated throughout the dry season are concentrated with little dilution by the initial storm of the season, are thought to have the largest impact on receiving waters.

The State Water Resources Control Board (State Board), in compliance with the Section 303(d) of the Clean Water Act [33 U.S.C. Section 1313(d)] prepared, and EPA approved a 2002 list of “impaired” water bodies in the State of California. The list includes a priority schedule for the development of total maximum daily loads (TMDLs) for each contaminant or “stressor” impacting the water body. The San Joaquin River is identified in the 2002 California Section 303(d) List and TMDL Priority Schedule as an impaired water body for the following contaminants: boron, chlorpyrifos, DDT (Di(para-chloro-phenyl)-trichloroethane), diazinon, electrical conductivity, Group A pesticides, mercury, and unknown toxicity (EPA, 2003). Harding Drain is also listed as impaired for ammonia, chlorpyrifos, diazinon, and unknown toxicity. Sources of these contaminants are mainly attributed to local agriculture, as well as municipal point sources in the case of ammonia. However, the City’s newly constructed and operational nitrification facilities now mitigate and/or eliminate the alleged impairment of ammonia. The Delta, downstream of the project area, has been designated as impaired for a variety of contaminants, including pesticides (chlorpyrifos, DDT, diazinon, and Group A pesticides) resulting from agricultural and urban runoff/storm sewers, mercury (from abandoned mine drainage), electrical conductivity (agriculture), organic enrichment/low dissolved oxygen (municipal point sources and urban runoff/storm sewers), and unknown toxicity (unknown cause).

Groundwater Quality

Because annual rainfall is less than evapotranspiration in the project area, recharge of unconfined and semi-confined aquifers, or water-bearing basins, comes mostly from surface application of water from agricultural irrigation. Surface water may add to or receive groundwater through subsurface pathways. Therefore, the water quality of irrigation and surface waters directly influences groundwater quality. As mentioned above, the shallow aquifer is hydraulically connected to the deeper main aquifer that is used as a water source. Water quality of the shallow aquifers can therefore also affect the water quality of the lower aquifer. Contaminants can reach groundwater aquifers through infiltration/percolation and groundwater wells that act as conduits to deep aquifers.

The quality of groundwater is judged mostly by salt concentrations and, to a lesser extent, by levels of pesticides, nutrients, and other contaminants. The overall quality of groundwater in the project area varies from poor to good. Some chemicals are present in varying amounts that might eventually cause problems, including chloride, nitrate, arsenic, sodium, calcium, magnesium, carbonate, DBCP (1,2-dibromo-3-chloropropane), bicarbonate and sulfate (Stanislaus County, 1987).

REGULATORY SETTING

A variety of federal, state, and local agencies have jurisdiction over certain aspects of the Proposed Project. Important agencies and statutory authorities relevant to water quality as it relates to the Proposed Project are outlined below.

Clean Water Act

The CWA (33 USC 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important applicable sections of the Act are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity which may result in a discharge to "waters of the United States" to obtain certification from the state that the discharge will comply with other provisions of the Act. Certification is provided by the Regional Boards.
- Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permit program is administered by the Regional Boards, and discussed in detail below.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the ACOE.

Potential impacts arising from dredge and fill of waters of the United States are discussed in detail in **Section 3.2, Biological Resources**.

Porter-Cologne Water Quality Control Act

The State of California's Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) provides the basis for water quality regulation within California. The Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. Waste discharge requirements resulting from the Report are issued by the Regional Board. In practice, these requirements are typically integrated with the NPDES permitting process.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Board administers water rights, water pollution control, and water quality functions throughout the state, while the Regional Water Quality Control Boards conduct planning, permitting, and enforcement activities. The project area lies within the jurisdiction of the Central Valley (Region 5) Regional Board.

Beneficial Uses and Water Quality Objectives

The Regional Board is responsible for the protection of water quality to support beneficial uses of water resources within its jurisdiction. Beneficial uses consist of the existing and probable future uses of a water body. The Regional Board has adopted the Fourth Edition of the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins (Regional Board, 1998) that sets forth the beneficial uses identified for water bodies within the region. In addition to the identification of beneficial uses, the Basin Plan also contains water quality objectives that are adopted and intended to protect the specified beneficial uses. Together, the beneficial use of a water body and the corresponding water quality objective adopted to protect that use comprise the "water quality standard" for purposes of regulation under the NPDES Permit program.

Beneficial uses of the surface waters of the San Joaquin River are listed in the Basin Plan as: municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, body contact recreation, canoeing and rafting, other non-body contact water recreation, aesthetic enjoyment, warm freshwater aquatic habitat, warm fish migration habitat, and cold fish migration habitat, warm spawning habitat. The beneficial uses for Harding Drain are not specified in the Basin Plan; however, the beneficial uses of Harding Drain are currently being evaluated by the Regional Board in response to State Board Order 2002-0016. The beneficial uses of the groundwater underlying the project area are listed in the Basin Plan as: municipal and domestic supply, industrial service and process, and agricultural supply.

General Construction Stormwater NPDES Permit

As mentioned above, the Regional Board administers the NPDES stormwater permitting program in the Central Valley Region for construction activities. Construction activities disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). For qualifying projects, the project applicant must submit a Notice of Intent to the

Regional Board to be covered by the General Construction Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a SWPPP, which must also be completed before construction begins. Implementation of the plan starts with the commencement of construction and continues through the completion of the project. Upon completion of the project, the applicant must submit a Notice of Termination to the Regional Board to indicate that construction is completed.

The disturbance area associated with construction of the project facilities is anticipated to exceed the threshold requiring coverage under the General Construction Permit

Best Management Practices

The term "Best Management Practices" (BMP) refers to a wide variety of measures taken to reduce pollutants in stormwater and other non-point source runoff. Measures range from source control, such as use of permeable pavement, to treatment of polluted runoff, such as detention or retention basins and constructed wetlands. The effectiveness of a particular BMP is highly contingent upon the context in which it is applied and the method in which it is implemented. Typical effectiveness of several construction site BMPs is given in **Table 3.1-2.** Because no BMP is expected to remove 100% of pollutants, BMPs are best used in combination to most effectively remove target pollutants.

Individual NPDES Permit

All point source dischargers to waters of the United States not governed by a general permit are required to apply for an individual NPDES permit with the Regional Board, unless a specific exemption or waiver is provided. The Regional Board then issues an NPDES permit and waste discharge requirements (for any requirements specific to discharges into waters of the State), along with monitoring provisions to ensure compliance.

The City's WQCF is currently regulated by Regional Board Order 5-01-122, which requires the City to comply with newly imposed discharge requirements by May 2006. Since the Proposed Project intends to cease discharge to the Harding Drain and, instead, discharge directly to the San Joaquin River through a new proposed pipeline upstream of the current discharge point, in accordance with Regional Board Order 5-01-122 and federal regulation, the City will notify the Regional Board of the new discharge location and seek a permit amendment to reflect the new location. The City's existing NPDES permit is provided in **Appendix C** with discharge limitation summarized in **Table 3.1-3**.

TABLE 3.1-2
BMP EXPECTED POLLUTANT REMOVAL EFFICIENCY

	Typical Pollutant Removal (percent)				
Structural BMP Type	**Suspended Solids**	**Nitrogen**	**Phosphorus**	**Pathogens**	**Metals**
Dry Detention Basins	30 – 65	15 – 45	15 – 45	<30	15 – 45
Retention Basins	50 – 80	30 – 65	30 – 65	<30	50 – 80
Constructed Wetlands	50 – 80	<30	15 – 45	<30	50 – 80
Infiltration Basins	50 – 80	50 – 80	50 – 80	65 – 100	50 – 80
Infiltration Trenches / Dry Wells	50 – 80	50 – 80	15 – 45	65 – 100	50 – 80
Porous Pavement	65 – 100	65 – 100	30 – 65	65 – 100	65 – 100
Grassed Swales	30 – 65	15 – 45	15 – 45	<30	15 – 45
Vegetated Filter Strips	50 – 80	50 – 80	50 – 80	<30	50 – 80
Surface Sand Filters	50 – 80	<30	50 – 80	<30	50 – 80
Other Media Filters	65 – 100	15 – 45	<30	<30	50 – 80
Construction Site BMP Type					
Silt Fence	50 – 80				
Sediment Basin	55 – 100				
Sediment Trap	60				

SOURCE: EPA, 1999; EPA, 1993.

TABLE 3.1-3
WQCF EFFLUENT LIMITATIONS UNDER REGIONAL BOARD ORDER 5-01-122

Constituent [1]	**Unit**	**Regulatory Standard**	**Monthly Average**	**Daily Maximum**	**Interim Monthly Average** [2]	**Interim Daily Maximum** [2]
BOD	mg/l	n/a[3]	10	20	30	90
Total Suspended Solids	mg/l	n/a[4]	10	20	30	90
Settleable Solids	mg/l	n/a	0.1	0.1	N/A	N/A
Total Coliform	MPN/100 ml	2.2/100	2.2 as monthly median	240	23	500
Turbidity	NTU	n/a	2	5	N/A	N/A
Oil and Grease	mg/l	n/a	10	15	N/A	N/A
Chlorine	mg/l	n/a	0.01	0.02	N/A	N/A

1. As a result of State Board Order 2002-0016, effluent limitations for aluminum, copper, cyanide, zinc, bromodichloromethane, molybdenum, tributyltin, iron and manganese were remanded to the Regional Board for reconsideration, and the effectiveness of those limitations in the current Permit were stayed.
2. In effect until 1 May 2006.

Source: City of Turlock, 2003

TURLOCK GENERAL PLAN

The Turlock General Plan (City of Turlock, 1992) outlines guiding policies related to water quality. It encourages projects to continue efforts to safeguard the quality and availability of Turlock's water supply, and to undertake steps to minimize the depletion of groundwater resources. The General Plan also contains guiding policies to promote the orderly and efficient expansion of public utilities and storm drainage systems to adequately meet project needs, and to address the inadequacy of the sewage treatment plant to serve anticipated growth.

STANISLAUS COUNTY

GENERAL PLAN

The Stanislaus County General Plan (Stanislaus County, 1994) Safety and Conservation and Open Space Elements outline goals and policies related to water quality and flooding within Proposed Project area. The following goals and policies are relevant to the Proposed Project.

CONSERVATION AND OPEN SPACE GOALS AND POLICIES

GOAL TWO: Conserve water resources and protect water quality in the County.

POLICY FIVE: Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

POLICY SIX: Preserve vegetation to protect waterways from bank erosion and siltation.

STANISLAUS COUNTY CODE

Chapter 16.50 of the Stanislaus County Code deals with prevention of flood damage. Projects within the unincorporated portion of the County that are within a special flood hazard area are required to obtain a development permit. The Chapter also outlines construction standards to be used in areas of special flood hazards, including anchoring, flood-proofing, and other construction materials and methods.

3.1.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Consistent with criteria derived from Appendix G of the CEQA Guidelines and the professional judgment of City staff and its environmental consultants, the Proposed Project would result in a significant impact on water resources if it would:

- Violate any water quality standards or waste discharge requirement;
- Reduce flows in the San Joaquin River and/or Harding Drain;

- Impair the achievement of beneficial uses of surface water or groundwater;
- Otherwise substantially degrade water quality;
- 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);
- 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;
- 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 which would result in flooding on- or off-site;
- 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;
- 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;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- 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;
- Expose people or structures to a significant risk of loss, injury, or death due to inundation by seiche, tsunami, or mudflow.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact

3.1.1 Water Quality – Construction of the Proposed Project could result in increased erosion and sedimentation, with subsequent impacts to water quality and/or storm drain capacity during construction. Additionally, release of fuels or other hazardous materials associated with construction equipment could impact local surface and groundwater quality. (Potentially Significant)

During site grading, trenching, and construction activities, large areas of bare soil would be exposed to erosive forces for long periods of time. Bare soils are much more likely to erode than vegetated areas due to the lack of dispersion, infiltration, and retention created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, dewatering and grading activities could result in increased erosion and sedimentation to surface waters. If precautions are not taken to contain

contaminants, construction could produce contaminated stormwater runoff (nonpoint source pollution), a major contributor to the degradation of water quality. In addition, hazardous materials associated with construction equipment could adversely affect surface and groundwater quality if spilled or stored improperly. Without mitigation, construction of the Proposed Project could result in potentially significant impacts.

During construction of the Proposed Project, dewatering operations would be used during the installation of the outfall and the various jack and bore locations indicated in **Figure 3-1.2**. The pumping may result in increased turbidity, but will be closely monitored to ensure that there is no degradation of stream water quality and that no water quality objective or standard will be exceeded. It is the City's intent that surface and/or groundwater extracted during dewatering operations be conducted in accordance with RWQCB General Order No. 5-00-175 for NPDES General Permit No. CA G995001. This General Order and NPDES permit covers waste discharge requirements for dewatering and other low thereat discharges to surface water. The discharge from the dewatering operations will be evaluated and made part of the project SWPPP and be used to obtain RWQCB approval for all storm water and construction related activities.

Mitigation Measure

3.1.1a To minimize the exposure of sediments to runoff, the City would implement measures contained in the Construction Contractor's Guide and Specification of the Caltrans Storm Water Quality Handbook (The Handbook; April 1997) and the SWRCB Water Quality Order 99-08-DWQ, NPDES, General Permit for Stormwater Discharge Associated with Construction Activity.

3.1.1b All construction plans and activities shall implement multiple BMPs to provide effective erosion and sediment control. These BMPs shall be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to be implemented as part of this mitigation measure shall include, but are not limited to, the following measures:

- **Temporary erosion control measures (such as silt fences, staked straw bales/ wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed for disturbed areas.**
- **Dirt and debris shall be swept from paved streets in the construction zone on a regular basis, particularly before predicted rainfall events.**
- **Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance. At minimum, vegetative application shall be done by September 15th to allow for plant establishment. No disturbed surfaces will be left without erosion control measures in place during the period of October 15th to April 15th.**
- **Silt fences and catch basins will be placed below all construction activities at the edge of the river to intercept sediment before it reaches the river. These structures will be installed prior to any clearing or grading activities.**

- **Spoil sites will be located such that they do not drain directly into the San Joaquin River or TID Laterals, if possible. If a spoil site drains into the river or local drains, catch basins will be constructed to intercept sediment before it reaches the river. Spoil sites will be graded to reduce the potential for erosion.**

While data is scarce regarding the effectiveness of BMPs as erosion and sediment controls, the expected pollutant removal efficiencies given in Table 3.1-2 suggest that multiple BMPs used in combination, properly installed and maintained, can achieve significant sediment removal. Therefore the final selection and design of erosion and sediment controls should include the use of multiple BMPs to protect water quality.

BMPs proposed by the City's contractor shall be subject to approval by the City, and the City shall require that all parties performing construction under the Proposed Project incorporate into contract specifications the requirement that the contractor(s) comply with and implement these provisions. The contractor shall also include provisions for monitoring during and after construction activities to verify that these standards are met.

3.1.1c Implement Mitigation Measure 3.10.2.

Significance After Mitigation

Less-than-significant.

Impact

3.1.2 Hydrology – Removal of treated-wastewater from the Harding Drain will not reduce existing flows in the San Joaquin River, but would lead to reduced flows in the Harding Drain. (Less-than-Significant)

As previously described, the Harding Drain is an artificial irrigation drain that captures poor quality irrigation flows. Since groundwater elevations are relatively shallow, groundwater "dewaters" or "rises" from the local shallow aquifer into the Harding Drain. The removal of wastewater flows from Harding Drain may create a steeper gradient that may from time to time (depending on climate and other hydrologic conditions) allow more groundwater to flow from the local shallow aquifer into the Drain until the groundwater and Drain water systems reach equilibrium (Timothy J. Durbin, Inc, 2004).

The water present in Harding Drain does not contribute to water levels in any surface watercourse other than the San Joaquin River. Additionally, the Proposed Project will not reduce flows in the San Joaquin River since the new discharge location will be upstream from the current point of discharge on the River. Further, the Drain and the San Joaquin River will not be affected by channel losses due to the presence of rising groundwater in both systems. If the Proposed Project is implemented, this rising groundwater (from the local shallow aquifer in the vicinity the Harding Drain) may replace some of the flow in the Harding Drain as a result of a steeper gradient between the groundwater and the surface water levels. Any resulting impact on water levels in the

local shallow aquifer would be minimal and might ultimately provide some slight benefit by reducing the need to pump high groundwater.

Mitigation Measure

No mitigation is required.

Impact

3.1.3 Water Quality – The elimination of the WQCF discharges to the Harding Drain would not result in adverse effects to water quality and beneficial uses (Less-than-Significant)

Sampling results for approximately 187 conventional and priority pollutants at the R-1 sampling point in Harding Drain, upstream of the City's discharge point, and the R-2 sampling point in Harding Drain, downstream of the City's discharge point, (see **Appendix D** for sampling data) during the period of August 2000 - present were analyzed to determine:

- Whether, based on the sampling results at the R-1 and R-2 sampling points, any adverse change is likely to occur in Harding Drain as a result of removing the City's discharge. An adverse change is identified by comparing the data between sampling point R-1 and sampling point R-2 and determining whether a negative increase or decrease of a given constituent will occur in Harding Drain downstream of the City's unoccupied discharge point; and

- Whether, based on the sampling results at the R-1 sampling point, the water quality in Harding Drain, without the addition of the City's discharge, will comply with applicable water quality standards, even with an identified adverse change. The water quality standards used for purposes of this analysis consist of the water quality objectives and criteria identified in the Central Valley Regional Board's Basin Plan, EPA 304(a) criteria (for ammonia), and the California Toxics Rule ("CTR") that correspond to the assumed beneficial uses of warm aquatic habitat ("WARM"), Water Contact Recreation (REC-1), and Non-Contact Water Recreation (REC-2).

Using these significance criteria, if the concentration of a constituent increases or decreases by virtue of removing the City's discharge, but nonetheless, the concentration of the constituent in Harding Drain continues to attain and maintain applicable water quality objectives, the identified adverse change is "less-than-significant" unless there is an indication that the change would otherwise "substantially degrade water quality." Based on the City's review of the data, the impact of removing the City's discharge from Harding Drain is "less-than-significant."

For few constituents (i.e., dissolved oxygen), an adverse change was identified for a specific sampling date (i.e., for dissolved oxygen, the concentration at R-1 was lower than the concentration at R-2 in November 2000, with concentration being reported at

9.4 mg/l and 10.4 mg/l, respectively); however, in each instance, except for two sampling results discussed below, the sampling results for R-1 continued to comply with applicable water quality objectives (i.e., the applicable water quality objective for dissolved oxygen is 5.0 mg/l, compliance with which requires a concentration of 5.0 mg/l or higher – the sampling result at R-1 of 9.4 mg/l complies with the objective).

On February 7, 2001, the sampling results for dissolved oxygen at R-1 and R-2 were 3.6 mg/l and 3.9 mg/l, respectively. On February 21, 2001, the sampling result for R-1 was 5.9 mg/l. Because the February 7, 2001 sampling result was the only data point among 108 sampling results over the course of three and a half years that was below the water quality objective of 5.0 mg/l, the addition of the City's discharge did not beneficially affect Harding Drain's brief non-attainment of the applicable water quality objective, and because no adverse effect on beneficial uses was observed, removal of the City's discharge is a "less-than-significant" impact for dissolved oxygen.

On June 30, 2003, the sampling result for fecal coliform at R-1 was 900 MPN[1]/100 ml. Because the June 30, 2003 sampling result was the only data point above the 400 MPN/ 100 ml "not to exceed" requirement in the Basin Plan and because no adverse effect on beneficial uses was observed, removal of the City's discharge is a "less-than-significant" impact for coliform.

Thus, the few identified adverse changes to Harding Drain as a result of removing the City's discharge are "less-than-significant" and the change would not otherwise "substantially degrade water quality."

Mitigation Measure

No mitigation is required.

Impact

3.1.4 Water Quality – Project-related facilities are expected to result in a minimal increase in drainage flows as a result of runoff from increased amounts of impervious surfaces. The additional impervious surfaces would not represent significant sources of non-point source pollution, nor are they expected to contribute substantial additional sources of polluted runoff. (Less-than-Significant)

Project-related facilities would include two new above-ground structures: a pump station immediately southeast of the intersection of Prairie Flower Road and Harding Road, and a post- aeration structure at the land-side of the San Joaquin River levee. Both of the structures would, in combination, add less than two acres of impervious surfaces. Runoff from these two sites would be minimal with site drainage entering the Harding Drain or a constructed rock-well, consistent with Stanislaus County design standards. Given the minimal increase in impervious surfaces in conjunction with the net increase in drainage

[1] Most Probable Number (MPN) – Method for estimating microbial populations in water and/or soil based on extinction dilutions.

capacity within the Harding Drain, the project would not contribute to substantial additional sources of polluted runoff.

Mitigation Measure

No mitigation is required.

Impact

3.1.5 Water Quality – The discharge of tertiary treated wastewater to the San Joaquin River under the Proposed Project would not result in adverse changes to the volume and quality of discharge to the San Joaquin River. (Less-than-Significant)

As indicated in Chapter 2.0, tertiary treatment upgrades would be constructed in accordance with the Regional Board's Order 5-01-122 and in operation by May 2006. Effluent limitations required under the new NPDES permit (CA0078948) are provided in **Table 3.1-3**. This effluent would be of higher quality than baseline conditions due to the addition of tertiary treatment. The Proposed Project would continue to support those beneficial uses outlined by the Regional Board for the San Joaquin River and Delta. These corresponding improvements in the quality of discharge, in combination with an increased quantity as build-out within the City continues would ensure no adverse effects to the San Joaquin River and a less-than-significant impact

Mitigation Measure

No mitigation is required.

Impact

3.1.6 Water Quality – The pipeline and flows associated with the Proposed Project would introduce the potential for leaks and sewer overflows, with impacts to surface and/or groundwater. (Less-than-Significant)

The proposed pipeline would be designed and engineered with sufficient capacity to accommodate anticipated future peak flows of 35 mgd. In addition, as indicated in the Chapter 2.0, a geotechnical investigation would be performed for all segments of the force main and associated infrastructure, thereby accounting for expansive soils, settlement and seismic activity that could lead to future breakage of the pipeline. The pipeline would be subject to an engineering report that would identify contingency plans to ensure that operational errors, pipeline breakages, and other sources of contamination do not occur. Through the compliance with City and County standards and specifications, the impact is considered less-than-significant.

The California Department of Health Services Bulletin 79 states that a minimum separation of 50 feet must be maintained between a sewer line and domestic well. As part of the Proposed Project's design, the location of all wells within 75 feet of the proposed pipeline alignment would be determined. If any well is determined to be within

the 50 foot separation, the relocation of the pipeline or well, depending on feasibility, will be required to achieve the minimum 50 foot separation. Compliance with these regulations would ensure that impacts to local water supply wells are less-than-significant.

Mitigation Measure

No mitigation is required.

Impact

3.1.7 Groundwater Quantity – Implementation of the Proposed Project would not deplete local groundwater supplies or interfere substantially with groundwater recharge. (Less-than-Significant)

No new wells are proposed a part of the Proposed Project. However, it is recognized that dewatering operations could result in localized and temporary lowering of the water table in the vicinity of the proposed bore and jack locations and proposed outfall. As depicted in **Figure 3.1-2**, groundwater elevations within the project area tend to run relatively shallow thereby requiring pumping activities in areas closer to the San Joaquin River. In this context, any localized drawdown resulting from dewatering operations would be minimal and temporary in nature with recharge occurring relatively quickly given the project area's low landscape position within the Valley trough.

As previously indicated under Impact 3.1.3, the Proposed Project would result in minimal increase in impervious surface area (e.g., structures, asphalt). Consequently, the Proposed Project would not interfere substantially with local groundwater recharge. In light of these project characteristics, the impact to groundwater resources is considered less-than-significant.

Mitigation Measure

No mitigation is required.

Impact

3.1.8 Drainage – The Proposed Project would not result in any significant adverse effects to the existing drainage pattern of the project area. (Less-than-Significant)

The Proposed Project would eliminate discharges to the Harding Drain (TID lateral No. 5). Current wastewater discharges would be directed to a new outfall on the eastern bank of the San Joaquin River. The relocation of the sewer outfall would result in a net increase in drainage capacity for the Harding Drain. This is considered a beneficial effect of the project.

Following site restoration, the completed pipeline is expected to result in less than two acres of new impervious surface, thereby resulting in minimal increases in drainage

flows. New impervious surfaces (e.g., asphalt, concrete) resulting from the Proposed Project would be limited to the pump station and post aeration structure. In most instances, site restoration would involve the replacement of the existing ground surface, which could include asphalt, bare ground, or cropland. Installation of the outfall structure would be performed in compliance with required regulatory permits (see Chapter 2.0). Likewise, TID canals would be crossed during the non-irrigation season, in compliance with the acquired encroachment permit. In recognition of the temporary nature of these crossings, no permanent alteration in the course of a stream, river or other water course would result from the Proposed Project. As a result, runoff from generated by project facilities under the project is not expected to exceed the capacity of existing drainage systems, create localized flooding, or contribute to a cumulative flooding impact downstream.

Mitigation Measure

No mitigation is required.

Impact

3.1.9 Flooding – The Proposed Project would involve the placement of an outfall structure within a 100-year flood hazard area for the San Joaquin River. However, this structure would not increase risks associated with flooding in the project area, including flooding as a result of the failure of a levee or dam. (Less-than-Significant)

The majority of the project site is located outside of the 100-year floodplain. Facilities located within the floodplain would consist of the submerged outfall diffuser structure. Construction of these facilities would be of limited duration, and therefore unlikely to expose workers to significant risk of injury or death as a result of flooding. Further, the geotechnical investigation would provide measures required to ensure that the outfall structure and gravity pipeline are sufficiently anchored to withstand the 100-year flood consistent with County ordinance. Finally, the outfall structure would be submerged within the floodplain, and would not significantly impede or redirect flood flows or place housing within a 100-year floodplain.

It is acknowledged that numerous dams are located upstream of the project site. However, the risk of flooding from dam failure is considered very low, since each of these dam structures are subject to rigorous annual inspection programs and the Proposed Project would not affect their current structural integrity. Flooding risks associated with the operation of the Proposed Project are also considered minimal, due to the incorporation of isolation valves, which allow the City to shut off specific sections of the pipeline in the event of a rupture. The Proposed Project would involve the crossing of the eastern levee of the San Joaquin River. This crossing would be performed in accordance with any encroachment permit issued by the State Reclamation Board. For the above-mentioned reasons, the Proposed Project would not increase risks associated with flooding and the impact is considered less-than-significant.

Mitigation Measures

No mitigation is required.

Impact

3.1.10 Seiche, Tsunami, or Mudflow – The proposed Project would not result in the increased exposure of people or structures risks associated with inundation by seiche, tsunami, or mudflow. (Less-than-Significant)

Tsunamis originating in the Pacific Ocean would dissipate in the San Francisco Bay, and therefore pose a negligible hazard to the project area. The probability of a seiche occurring in the San Joaquin River or in one of the many upstream reservoirs is considered minimal. Given the geologic context of the project area, if such an event were to occur, the likelihood of it exposing project facilities or people to a significant risk of injury or death is considered low. Finally, the project site is nearly level, with little or no risk of mudflow.

Mitigation Measure

No mitigation is required.

3.2 BIOLOGICAL RESOURCES

3.2.1 INTRODUCTION

The following section describes the biological resources and natural communities occurring within the project area, and outlines potential impacts to biological resources that may result from the Proposed Project. This evaluation of biological resources includes a review of potentially occurring special-status species, wildlife habitats, vegetation communities, and jurisdictional waters of the U.S. The results of this assessment are based upon field reconnaissance, literature searches and database queries. A site reconnaissance was conducted by ESA biologists on June 28, 2003 and on April 30, 2004. The sources of reference data reviewed for this section included the following:

- *Hatch*, and *Crows Landing* 7.5-minute topographic quadrangles (U.S. Department of the Interior, Geological Survey, 1979 and 1980);
- California Natural Diversity Database (CNDDB), Rarefind 2 computer program (California Department of Fish and Game, 2003a);
- California Native Plant Society (CNPS). 2003. *Inventory of Rare and Endangered Plants of California* - online 6th edition. Accessed August 17, 2003 at http://www.cnps.org/;
- *Threatened and Endangered Animals List* (California Department of Fish and Game, 2003a);
- *Threatened and Endangered Plants List* (California Department of Fish and Game, 2003a);
- U.S. Fish and Wildlife Service Species Lists (U.S. Fish and Wildlife Service, 2003).

REGULATORY FRAMEWORK

Federal Endangered Species Act

Under the FESA, the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 USC 1533[c]). Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed threatened or endangered species could be present in the project area and determine whether the proposed project would have a potentially significant impact on such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[a][3], [a][4]).

The USFWS also publishes a list of candidate species. Species on this list receive “special attention” from federal agencies during environmental review, although they are not otherwise protected under the FESA. The candidate species are taxa for which the USFWS has sufficient biological information to support a proposal to list as endangered or threatened.

Essential Fish Habitat

The Sustainable Fisheries Act of 1996 (Public Law 104-297), amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for Essential Fish Habitat (EFH) descriptions in federal Fisheries Management Plans (FMPs) and to require federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH. The Magnuson-Stevens Act requires all fishery management councils to amend their FMPs to describe and identify EFH for each managed fishery. The Act also requires consultation for all federal agency actions that may adversely affect EFH (i.e., direct versus indirect effects); it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside of EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of the activity's location. Under section 305(b)(4) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. However, state agencies and private parties are not required to consult with NOAA Fisheries unless state or private actions require a federal permit or receive federal funding.

Regulation of Activities in Waters of the United States

Federal Regulation

The ACOE has primary federal responsibility for administering regulations that concern "waters of the U.S." within the project area. The ACOE acts under two statutory authorities, the Rivers and Harbors Act (Sections 9 and 10) which governs specified activities in "Navigable Waters of the U.S.," and the CWA (Section 404), which governs specified activities in "other waters of the United States" including wetlands. The ACOE requires that a permit be obtained if a project proposes placing structures within, over, or under navigable waters and/or discharging dredged or fill material into "waters of the U.S." below the ordinary high-water mark in non-tidal waters. The EPA, USFWS, the NOAA Fisheries, and several other agencies provide comment on ACOE permit applications.

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. In a jurisdictional sense, the federal government defines wetlands in Section 404 of the CWA as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b] and 40 CFR 230.3). The federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater marshes, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other waters of the U.S. (see definition below for "other waters of the U.S."). The ACOE is the responsible agency for regulating wetlands under Section 404 of the CWA, while the EPA has overall responsibility for the Act.

"Other waters of the U.S." refers to those hydric features that are regulated by the CWA but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes.

Wet areas that are not regulated under the CWA would include stock watering ponds, agricultural ditches created in upland areas, and isolated wetlands that do not have a hydrologic link to other waters of the U.S., either through surface or subsurface flow.

The discharge of fill into a jurisdictional feature requires a permit from the ACOE. The ACOE has the option to issue a permit on a case-by-case basis (individual permit) or at a program level (general permit). NWPs are an example of general permits; they cover specific activities that generally have minimal environmental effects. Activities covered under a particular NWP must fulfill several general and specific conditions, as defined by the NWP. If a Proposed Project cannot meet these conditions, an individual permit may be required.

State Regulation

The state's authority to regulate activities in "waters of the U.S." resides primarily with the CDFG and the SWRCB. CDFG provides comment on ACOE permit actions under the Fish and Wildlife Coordination Act. CDFG is also authorized under the California Fish and Game Code, Sections 1600–1607 to develop mitigation measures and enter into Streambed Alteration Agreements with applicants who propose projects that would obstruct the flow of, or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams. The SWRCB, acting through the appropriate RWQCB, must certify that an ACOE permit action meets state water quality objectives (Section 401, CWA).

California Fish and Game Code Sections 1600–1607 require the notification of CDFG for any activity that could affect the bank or bed of any stream that has value to fish and wildlife. Upon notification, the CDFG has the responsibility to prepare a Streambed Alteration Agreement, in consultation with the project proponent.

California Endangered Species Act

Under the California Endangered Species Act (CESA), CDFG has the responsibility for maintaining a list of threatened species and endangered species (California Fish and Game Code 2070). The CDFG also maintains a list of "candidate species" which are species that the CDFG has formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. The CDFG also maintains lists of "species of special concern" which serve as "watch lists." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present in the project area and determine whether the proposed project would have a potentially significant impact on such species. In addition, the Department encourages informal consultation on any proposed project which could impact a candidate species.

Other Statutes, Codes, and Policies Affording Limited Species Protection

Although threatened and endangered species are protected by specific federal and state statutes, CEQA *Guidelines* Section 15380 provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals.

Vascular plants listed as rare or endangered by the CNPS (CNPS, 2003), but which have no designated status or protection under federal or state endangered species legislation, are defined as follows (see **Appendix E**):

List 1A Plants Believed Extinct.
List 1B Plants Rare, Threatened, or Endangered in California and elsewhere.
List 2 Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.
List 3 Plants About Which We Need More Information – A Review List.
List 4 Plants of Limited Distribution – A Watch List.

The federal Migratory Bird Treaty Act (16 USC, Sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of Prey are protected in California under the State Fish and Game Code (Section 3503.5, 1992). Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) 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.

Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFG.

The federal Bald Eagle Protection Act prohibits persons within the United States (or places subject to U.S. jurisdiction) from "possessing, selling, purchasing, offering to sell, transporting, exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof."

In general, plants appearing on CNPS List 1B are considered to meet CEQA's Section 15380 criteria and effects to these species would be considered "significant" in this EIR.

3.2.2 SETTING

REGIONAL SETTING

Stanislaus County lies in the central region of the Central Valley. Historically, Stanislaus County supported extensive native grasslands intermixed with a variety of vegetative communities, including oak woodland, wetlands, and riparian woodland. Intensive agricultural and urban

development has resulted in a reduction of these habitats. The remaining native plant communities occur in isolated remnant patches within urban and agricultural landscapes, or in areas where varied topography has limited disturbance. The project area broadly includes the *Hatch*, and *Crows Landing* 7.5' USGS quadrangles, at elevations of 50 feet above mean sea level. Soils in the area are typically well-drained with sandy loams dominant towards Highway 99, and silt dominated soils more prevalent near the floodplains of the San Joaquin River. Inclusions of alkaline soils are also common in the area, especially along the San Joaquin River system.

PROJECT AREA SETTING

This section provides a review of the general types of natural communities / vegetation types and associated wildlife that occur in the project area. Included are descriptions of the specific vegetation and natural community types found along the proposed alignment. Following these summaries is a review of the special-status species either known or with potential to occur in the project area.

Natural Community / Habitat Types

There are five primary community types that characterize the overall project area. Community types are those habitat areas located in the vicinity of the proposed pipeline alignment. They are as follows:

Agricultural lands – crops, orchards, irrigated pasture
California annual grassland series
Mixed saltbush series
San Joaquin River
Irrigation Canals

Agricultural Lands

Agricultural production (including cattle ranching) is the main land use in Stanislaus County. Row crops, rice, alfalfa, and hay crops characterize agricultural production within central Stanislaus County. Cultivated lands provide little habitat for native plant species, however natural vegetation can occur along field edges and irrigation features such as ditches and stock ponds. Cultivated fields provide an essential over-wintering forage base for many species of waterfowl, shorebirds, and raptors. Migratory waterfowl and shorebirds depend on waste rice and corn that remain after harvest while deer often forage in alfalfa and grain fields. Irrigated rice fields serve as freshwater wetland habitats for a variety of wetland wildlife including waterfowl and shorebirds.

California Annual Grassland Series

Annual grasslands occur on flat plains and levees in the project area and are dominated by non-native annual grasses such as ripgut brome (*Bromus diandrus*) and wild oats (*Avena barbata*). Other common grass species include Johnson grass (*Sorghum halepense*)—a perennial forage grass. Other patches of annual grassland occur in the county as a consequence of the fallowing of

cultivated lands. Grasslands provide important foraging, breeding, and resting habitat for many species of wildlife.

Grasslands may attract reptiles such as western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), western whiptail (*Cnemidophorus tigris*), and gopher snake (*Pituophis melanoleucus*). This habitat also attracts seed- and insect-eating birds such as California quail (*Callipepla californica*), mourning dove (*Zenaidura macroura*), savanna sparrow (*Passerculus sandwichensis*), western kingbird (*Tyrannus verticalis*), meadowlark (*Sturnella neglecta*), scrub jay (*Aphelocoma coerulescens*), barn swallow (*Hirundo rustica*), and mockingbird (*Mimus polyglottus*). Small rodents attract raptors (birds of prey), including red-tailed hawks (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-shouldered hawks (*Buteo lineatus*), and barn owl (*Tyto alba*). Grasslands are important foraging grounds for aerial and ground foraging insect eaters such as *Myotis* bat species and pallid bats (*Antrozous pallidus*). Mammals such as California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Peromyscus maniculatus*), broad-footed mole (*Scapanus latimanus*), California ground squirrel (*Spermophilus beecheyi*), and black-tailed jackrabbit (*Lepus californicus*) forage and nest within the grassland.

Mixed Saltbush Series

This alkaline vegetation dominated by various saltbush species (*Atriplex* spp.) is common along the San Joaquin River levee system within seasonally inundated old floodplain habitat. These seasonal wetland habitats are composed of silt-dominated alkaline soils. Moderate to heavy cover is provided by both herbaceous and shrub species including Alkali heath (*Frankenia salina*), saltgrass (*Distichlis spicata*), Australian saltbush (*Atriplex semibaccata*), saltbush (*Atriplex fruticulosa*), wild heliotrope (*Heliotropium curassavicum*), quackgrass (*Elytrigia repens*), wild barley (*Hordeum marinum* var. *gussoneanum*), and alkali mallow (*Malvella leprosa*). This plant community provides habitat for rare and endangered plants associated with alkaline habitats and provides foraging and nesting habitat for small to medium sized mammals and bird species. A few patches of this habitat may be interspersed throughout the annual grassland habitat located on the east side of the San Joaquin River levee and immediately west of Carpenter Road.

San Joaquin River

The San Joaquin River is one of the two major rivers that flow into the north end of the San Francisco Bay. Its headwaters originate on the slopes of Mt. Goddard in Kings Canyon National Park and flow first northwest, and then southwest out of the Sierra Nevada. Behind Friant Dam—a project of the U.S. Bureau of Reclamation—the river forms Millerton Lake which is a popular recreation area. Below the Dam it flows northeasterly through the Central Valley and Stockton before joining the Sacramento River. The San Joaquin River is a major component of the Delta. It offers a continuous flow of water, and a variety of natural aquatic environments including riverine and estuarine habitats.

The San Joaquin River historically contained a diverse and productive natural environment supporting a complex network of creeks, sloughs, rivers, lakes, ponds, and wetlands. Populations of fish and wildlife occurred in the permanently flooded tule marshes, seasonal marshes, riparian forests, oak woodlands, and upland prairies associated with the San Joaquin River Delta. Human-induced alterations began in the late 1800's, as water diversions for agricultural purposes depleted streamflows and native vegetation.

During the summer, water temperatures can increase significantly due to lack of bank shading (from insufficient riparian habitat) and reduced flows. These factors combined with lower water quality have led to unfavorable habitat conditions for several species of native fishes in the San Joaquin River system. Thus the mainstem San Joaquin River is characterized by high percentages of introduced species tolerant of these environmental conditions. Particularly common are the fathead minnow (*Pimephales promelas*), red shiner (*Cypriella lutrensis*), threadfin shad (*Dorosoma pretenense*), and inland silverside (*Menidia beryllina*) (Dubrovsky et al., 1998). Other exotic predatory species such as largemouth bass (*Micropteras salmoides*), smallmouth bass (*Micropteras dolomieu*), and catfish (*Ameiurus catus*) inhabit the mainstem river and predate on and/or displace juvenile salmonids and other migratory and resident native fish species including California roach (*Lavinia symmetricus),* Sacramento squawfish (*Ptychocheilus grandis),* river lamprey (*Lampetra ayresi),*green sturgeon (*Acipenser medirostris),* hardhead (*Mylopharodon conocephalus),* Delta smelt (*Hypomesus transpacificus),* hitch (*Lavinia exilicauda),* Sacramento splittail (*Pogonichthys macrolepidotus),* and Pacific lamprey (*Lampetra tridentata).*

Upland habitat at the location of the outfall (east bank) is characterized by disturbed non-native grassland with an unvegetated, exposed, and rip-rapped river bank (**Figure 3.2-1**). The river aquatic habitat in the vicinity of the proposed project is characterized by silty/sand substrate with relatively no canopy or shading. A pool is located at the outfall site, created by the backwater effect of a left/north bend in the river.

Aquatic / Irrigation Canals

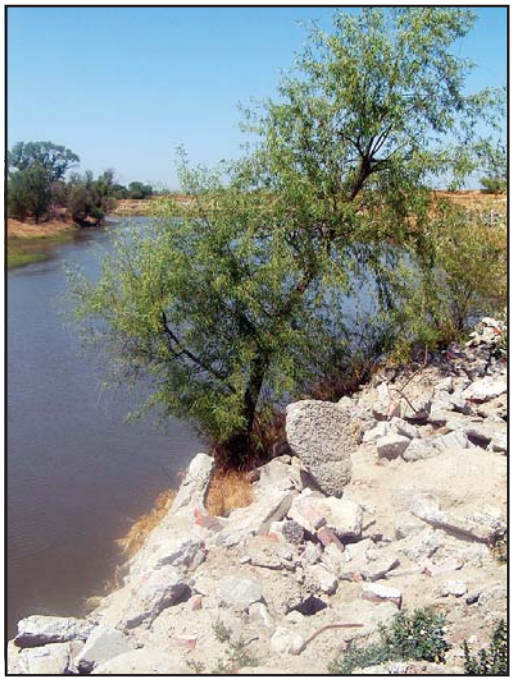
Water conveyance within agriculturally dominated project area is primarily conducted by irrigation canals. All canals or drainage ditches in the immediate vicinity of the proposed project are unlined and well-maintained, characterized by an exposed compacted soil bed and bank with no vegetation. These features provide no suitable habitat for special status plant or animal species.

Harding Drain

The Harding Drain is a long relatively straight open ditch lined with rip-rap and exposed soil. It discharges into the San Joaquin River directly west of Carpenter Road. Vegetation along the banks of this drainage is minimal (mostly weedy species) providing little shade or cover. Substrate within the channel is characterized by silt, sand and muck with no potential spawning habitat for salmonid species. A few small mammal burrows occur along the exposed soil banks of the Harding Drain, however, no burrowing owls were observed during the survey.

View looking upstream of the proposed outfall location

View from the proposed outfall location looking at the western bank of the San Joaquin River



View looking downstream of the proposed outfall location

SOURCE: Environmental Science Associates, 2004

Figure 3.2-1
Site Photographs

Special-Status Species

Special-status plant and animal species are those that could occur within or in the vicinity of the Project area that are recognized as rare and vulnerable to habitat loss or population decline. Some of these species receive specific protection as defined in federal or state endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts, to meet local conservation objectives. These species are referred to collectively as "special-status species" in this EIR.

Special-Status Species within the Project Area

A list of special-status plant and animal species reported to occur within or in the vicinity of the project area was compiled using data in the CNDDB, consultation with CDFG and USFWS, and a review of the CNPS sixth inventory of rare plants (CDFG, 2003b; CNPS, 2003, USFWS, 2003). No special status species were identified during a reconnaissance of the proposed alignment. A list of regionally occurring species with a potential to occur within the immediate vicinity of the project alignment is provided in **Appendix F**. Species with an elevated potential to occur within the project area are discussed in further detail below.

Potentially Occurring Sensitive Species

Swainson's Hawk

Swainson's Hawk is a migratory raptor listed as threatened by the State of California, and federally as a species of special concern. It breeds in western North America and winters for the most part in South America. It nests in trees, usually in riparian areas, but forages over pasturelands and open agricultural fields. In the Central Valley it is associated with riparian corridors adjacent to field crops and grasslands and subsists largely on small mammals, especially California vole, California ground squirrel, and large insects. Suitable foraging habitat within an energetically efficient flight distance from active Swainson's hawk nests has been found to be of great importance. Because the prey base for Swainson's hawk is highly variable from year to year, depending on cycles of agriculture, rainfall, and other natural cycles, large acreages of potential foraging habitat must be allotted per breeding pair.

The decline of the species in the Central Valley has been associated with extensive reduction of Swainson's hawk habitat. Suitable foraging habitat is present within the project area in agricultural fields, where populations of prey species are supported (ESA, 2002). Marginal nesting habitat occurs in the vicinity of the project along the western shore of the San Joaquin River. There have been a numerous sightings of Swainson's hawk recorded by CDFG within Stanislaus County, primarily along San Joaquin River corridor (CDFG, 2003c).

Tricolored Blackbird

Tricolored blackbirds are found in freshwater marshy areas in the Sacramento-San Joaquin Valley. The density of their breeding colonies make them vulnerable to decimation by mammalian and avian predators, including Swainson's hawks. Tricolored blackbirds use emergent wetland vegetation for cover, especially cattails and tules, but they also use trees and shrubs.

Western Burrowing Owl

Western burrowing owls inhabit open grasslands and shrub lands with perches and burrows. These owls eat mainly insects, with small mammals and birds making up a portion of the diet as well. For cover and breeding, old rodent burrows, as well as debris piles are used. Potential nest/ burrow sites occur along the San Joaquin River levee system and adjacent grasslands as well as the exposed banks of the Harding Drain.

Northwestern and Southwestern Pond Turtle

Both sub-species have similar life characteristics, and are separated based on geographic range and morphological differentiation. Pond turtles normally associate with permanent ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams. Pond turtles require basking sites such as partially submerged logs, rocks, or floating vegetation. They are considered omnivorous, feeding upon invertebrates, plant material, fishes, and frogs. Their home range is quite restricted, and they have a variety of vertebrate predators including certain fishes, bullfrogs, garter snakes, and some mammals. Within the project vicinity, native pond turtles may inhabit portions of the Harding Drain or the San Joaquin River.

Giant Garter Snake

Giant Garter Snake historically ranged throughout the Sacramento and San Joaquin valleys but is very scarce throughout its range due to the elimination of natural sloughs and marshy areas. This species is an active diurnal snake rarely found away from water. It is likely to feed upon introduced species such as mosquito fish, carp, and minnows as native historic food sources (i.e., red-legged frog and blackfish) are no longer available. Within the immediate vicinity of the proposed project, there is no suitable habitat for this species, as all canals/ditches are unvegetated and dry (with exception to periods of controlled water conveyance). The Harding Drain has exposed banks and lacks emergent aquatic vegetation, providing no suitable habitat as well.

Blunt-Nosed Leopard Lizard

Blunt-nosed leopard lizard historically inhabited sparsely vegetated alkali and desert scrub habitats. Distribution has been extensively reduced by conversion of habitat to cropland. The blunt nosed leopard lizard currently occurs at scattered sites in the San Joaquin Valley and adjacent foothills. This species is found on alkali flats, large washes, arroyos, canyons, and low foothills. Blunt-nosed leopard lizards are carnivorous. They are opportunistic foragers hat hunt on the ground, catching grasshoppers, cicadas and small lizards. Shade for leopard lizards is

provided by mammal burrows, shrubs or structures such as fence posts. The portion of saltbrush grassland along the San Joaquin river provides suitable habitat for the Blunt-nosed leopard lizard.

San Joaquin Whipsnake

San Joaquin Whipsnake occurs in open, dry, vegetative associations with little or no tree cover. In the western San Joaquin Valley, it occurs in valley grassland and saltbush scrub associations and is known to climb bushes such as *Atriplex* for viewing prey and potential predators. These snakes are typically active during the warmest part of the day and seem to primarily eat lizards and rob the nests of birds and mammals, but it may also eat carrion (CDFG, 2002). The portion of saltbush/grassland along the San Joaquin River provides suitable habitat for the San Joaquin whipsnake.

Central Valley Fall-Run Salmon

Chinook salmon runs are named for the time of season that upstream spawning migration occurs, and are defined by the combined timing of adult migration, the amount of time juveniles reside in a stream, and the time of year the smolts migrate out to sea. Fall-run salmon generally start migration from the ocean and begin spawning in San Joaquin River tributaries in early fall as water temperature begin to cool. Fall-run spawning occurs in the 20 river miles below the first major dams and reservoirs on the Merced, Tuolumne, and Stanislaus rivers during October, November, and December (SJRMP, 1993). Successful rearing of juvenile chinook requires cool streams/rivers with significant vegetative cover providing shade for protection from predation. Annual population surveys since 1953 indicate wide fluctuations in the number of fall-run salmon returning to spawn in San Joaquin River tributaries. Artificial propagation through the use of the Merced River Fish Facility has resulted in the release of smolts and yearlings by the California Department of Fish and Game. These releases ultimately average less than 10 percent of the escapement population (SJRMP, 1993). The effects of drought, inadequate stream flow, water developments, harvest, poor water quality, water diversions, habitat deterioration, and other factors have had varying levels of impact. Higher escapement years are strongly correlated with wet years and poor escapements with normal, dry, and critical water years. High concentrations of fine sediment in the water reduce intragravel flow and greatly reduce the survival of eggs. Typically, salmonids can not survive at dissolved oxygen concentration levels less than 5 mg/L.

Central Valley Steelhead

The Sacramento and San Joaquin Rivers offer the only migration route to the drainages of the Sierra Nevada and southern Cascade mountain ranges for steelhead. Information on migration and spawning tendencies of steelhead is difficult to determine due to the low abundance of spawners and the high flows and turbid waters occurring during winter spawning periods. NMFS reports limited data on the recent abundance of this ESU, but its present total run size based dam counts, hatchery returns, and past spawning surveys is probably less than 10,000 fish (NMFS, 1996). The most widespread run type of steelhead is in the winter (ocean-maturing) steelhead. Winter steelhead occurs in essentially all coastal rivers in California, while summer steelhead is far less common. In California, both winter and summer steelhead generally begin spawning in

December. Central Valley steelhead are reported to begin upstream migration into the American, Feather, Yuba, and Mokelumne rivers in August through October depending upon water temperature, weather conditions, and flow. Evidence on Central Valley steelhead utilizing the San Joaquin River for upstream migration and utilization of freshwater tributaries include a small remnant run in the Stanislaus River, observations in the Tuolumne River in 1993, and recent observations of large rainbow trout (possibly steelhead) at the Merced River Hatchery (McEwan and Jackson, 1996, NMFS, 1996).

On February 16, 2000, NMFS designated critical habitat for Central Valley steelhead. Critical habitat is designated to include all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries. Also included are river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Straits, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Excluded are areas of the San Joaquin River upstream of the Merced River confluence and areas above specific dams or above longstanding naturally impassable barriers. On May 29, 2002, NMFS reinitiated the status reviews of endangered and threatened Pacific Salmonid ESU's and Critical Habitat and began the re-assessment process for the potential delisting of the associated habitat.

Sacramento Splittail

The geographic distribution of the Sacramento splittail is broader than previously believed and continues to expand as more information is gathered. Adult foraging and spawning migrations occur in the Sacramento River each year and in the San Joaquin River during years of high freshwater outflow. Changes in the timing, magnitude, and duration of high river flows (floodplain inundation) probably affect when and where adults migrate. Splittail spawn in sloughs, flooded riverbeds, and areas with submerged vegetation during January to June, with the greatest spawning thought to occur in February–April. Eggs are demersal and adhesive. Most of the larvae occur in weedy areas and inundated vegetation where spawning occurs. Juveniles are often found in the Delta sloughs in late winter and spring. Sexual maturity takes place in one to two years, with a life span of approximately five years. Within the seasonal limits, juvenile and adult splittail use both the Sacramento and San Joaquin River extensively during the winter and spring. The summer to fall distribution of adult splittail is primarily limited to tidal fresh and brackish waters of the Sacramento-San Joaquin Delta, Suisun Bay, Suisun, Napa and Petaluma marshes. During high outflow years, and rarely in low outflow years, splittail inhabit the San Joaquin River and valley portions of some tributaries (Baxter, 1999). Age –0 fish emigrate primarily in the late spring and early summer. Splittail are able to locate flooded habitat well upstream in the San Joaquin River and spawn when conditions are suitable with known occurrences at Salt Slough (San Luis National Wildlife Refuge), Mud Slough, Fremont Ford (State Highway 140), Merced River, and Tuolumne River (Baxter, 1999).

Delta Smelt

Delta Smelt generally inhabit the lower reaches of the Sacramento River downstream of Isleton, the San Joaquin River downstream of Mossdale, and the Delta including Suisun Bay (Hansen, 2002). Delta smelt are a relatively small (2–3 inches long) species, which typically has an annual lifecycle, although some individuals may live two years. Prior to spawning, adult Delta smelt tend to migrate upstream into the lower reaches of the Sacramento and San Joaquin River systems, where spawning occurs during the late winter and spring. Spawning occurs from approximately February through June, with the greatest spawning activity occurring in April and May. Females deposit adhesive eggs on substrates such as gravel, rock, and submerged vegetation. Eggs hatch in approximately two weeks, at which time planktonic larvae are passively dispersed downstream by river flow. Larval and juvenile Delta smelt rear within the estuarine portions of the Delta for a period of approximately 6–9 months before beginning their upstream spawning movement into freshwater areas of the lower rivers. Delta smelt larvae, which passively drift with water currents, are vulnerable to entrainment at water diversions. Freshwater flows set an upper limit to delta stock recruitment within the year. The proportion of time when water flows are reversed (upstream flow) in the lower San Joaquin River during the egg and larval stages probably is the major source of density independent mortality. Higher volumes of freshwater outflows are associated with a larger adult smelt population due to higher plant and animal biomasses at all aquatic trophic levels (50 CFT Part 17, USFWS, 1993).

On December 19, 1994, USFWS designated critical habitat for Delta smelt within the Sacramento-San Joaquin system. Specific areas identified as critical habitat for Delta smelt spawning include Barker, Lindsay, Cash, Prospect, Georgiana, Beaver, Hog, Sycamore Sloughs and the Sacramento River in the Delta, and the tributaries of northern Suisun Bay. Areas identified as critical habitat for Delta smelt rearing extend eastward from the Carquinez Straits, including Suisun, Grizzly, and Honker Bays, Montezuma Slough and its tributary sloughs, up the Sacramento River to its confluence with Three-Mile Slough, and south along the San Joaquin River including Big Break.

Alkali milk-Vetch

This diminutive herbaceous annual member of the pea family (*Fabaceae*) occurs on alkaline flats and in seasonally moist alkaline meadows at elevations typically below 200’. The species is rare and endemic to California. It is known to occur in the southern Sacramento Valley, northern San Joaquin Valley and the eastern San Francisco Bay Area. 23 of the 35 known occurrences of this species have been extirpated by habitat destruction. The only protected population of this species occurs at the Jepson Prairie Preserve in Solano County. The seasonally saturated alkaline habitats just east of the San Joaquin River levee provide optimal habitat for this species.

Heartscale

Heartscale is a small, herbaceous annual species of saltbush in the goosefoot family (*Chenopodiaceae*). It occurs on saline and alkaline soils below 700’ in the southern Sacramento Valley and San Joaquin Valley. The species is rare and endemic to California. It typically occurs

in chenopod scrub and seasonally wet areas including meadows and seeps. The species is threatened by development and habitat destruction. The seasonally saturated alkaline habitats just east of the San Joaquin River levee provide optimal habitat for this species.

Brittlescale

Brittlescale is a small herbaceous, annual species of saltbush in the goosefoot family (*Chenopodiaceae*). It occurs on saline and alkaline soils, often with a significant clay component, below 600' in the southern Sacramento Valley and San Joaquin Valley. The species is rare and endemic to California. It typically occurs in chenopod scrub and seasonally wet areas including meadows and seeps. The species is threatened by development and habitat destruction. The seasonally saturated alkaline habitats just east of the San Joaquin River levee provide optimal habitat for this species.

San Joaquin Spearscale

San Joaquin spearscale is endemic to California. It typically occurs in chenopod scrub and seasonally wet areas including meadows and seeps. The species is threatened by grazing, agriculture and development. The seasonally saturated alkaline habitats just east of the San Joaquin River levee provide optimal habitat for this species.

Slough Thistle

This annual to biennial herbaceous member of the sunflower family (*Asteraceae*) is restricted to chenopod scrub, riparian scrub and freshwater marsh habitats in the San Joaquin Valley. It typically occurs at elevations below 300' elevation. The species is rare and endemic to California. It is threatened by agriculture and non-native plants. The seasonally saturated alkaline habitats near the San Joaquin River levee provide optimal habitat for this species.

Four-angled Spikerush

West of the Rocky Mountain Range in North America, four-angled spikerush has only been recorded from California. It can be found in marshes, swamps, and lake and pond margins in the Central Valley. Potential habitat for this species exists in the project area, however it has not been recorded in the area.

Delta Button-Celery

Delta button-celery grows in clay soils amongst sparse vegetation at the margins of seasonally inundated flood plains and swales. The competitive advantage which this species gained from tolerance to flood scouring has been lost with changes to the hydric regimes in its range—mainly flood suppression. Potential habitat for this species exists in the project area, and it has been sighted in the project area.

Sanford's Arrowhead

Sanford's Arrowhead grows in marshes, swamps, ponds, and ditches. It has been recorded in San Joaquin and Merced counties in the Central Valley. Disjunct populations have been found in Del Norte and Ventura counties as well. Potential habitat exists in the project area, but it has not been sighted in the area.

3.2.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

CEQA *Guidelines* Section 15206 specifies that a project shall be deemed to be of statewide, regional, or area-wide significance if it would substantially affect sensitive wildlife habitats including, but not limited to, riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species as defined by State Fish and Game Code Section 903.

The project would have a significant effect on the environment if it would:

- interfere substantially with the movement of any resident or migratory fish or wildlife species;
- substantially diminish habitat for fish, wildlife, or plants; or
- substantially affect a rare or endangered species or animal or plant or the habitat of the species.

CEQA *Guidelines* Section 15380 further provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

In consideration of Section 15380 of the CEQA *Guidelines*, the policies and regulations governing biological resources of the project area, and the project actions, the following evaluation criteria have been determined for the project:

- Loss of wetlands
- Loss of active raptor nests
- Loss of special-status species habitat
- Loss of special-status animal or plant species individuals

IMPACT ANALYSIS

Impact

3.2.1 The Proposed Project may have significant adverse impacts, either directly or through habitat modifications, to terrestrial and aquatic endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12). (Potentially Significant)

Swainson's Hawk. Suitable foraging habitat, in the form of annual grassland is located along the west side of Carpenter Road (aeration facility site). However, since this impact would be temporary in nature (over the course of a single breeding season) and suitable foraging habitat for this species is regionally abundant, impacts to foraging habitat are considered less-than-significant. A few roadside trees were observed along the proposed alignment during ESA's site reconnaissance. These trees may serve as potential nesting sites for Swainson's Hawk and other raptors (i.e., white-tailed kite). As such, construction activities associated with the Proposed Project could result in disturbance to potentially active nest sites. This would be a potentially significant impact.

Giant Garter Snake. The Proposed Project may affect this species if it is present in the unlined irrigation canals and ditches associated with the proposed alignment. Snakes may be incidentally harmed or harassed by construction activities if they are foraging within the proposed canal / ditch crossings and outfall. These areas provide very marginal habitat for this species. Additionally, the active period for GGS occurs during the months between May 1 and October 1. This time period would be when much of the outfall construction work would occur, which could lessen direct impacts to GGS since they're actively moving. However, this does not eliminate the potential for occurrence, and the potential for a significant impact remains.

Mitigation Measures

The following mitigation is required for Giant Garter Snake (GGS):

3.2.1a As noted above, the project area appears to provide only marginal habitat for GGS. Nonetheless, a survey for GGS will be conducted by a qualified biologist within 24 hours prior to the start of construction, and if GGS are present and there is a reasonable likelihood that construction will adversely impact GGS, the City and its construction contractor will adhere to the appropriate terms and conditions of the Programmatic Biological Opinion issued to the ACOE by the USFWS for giant garter snake (dated Nov. 13, 1997).

3.2.1b Prior to construction, all construction workers shall take part in a Service-approved worker environmental awareness program given by a Service-approved biologist.

3.2.1c The construction easement for the proposed crossings shall be fenced using temporary fencing to reduce the possibility of incidentally impacting giant garter snake habitat outside of the construction area.

The following mitigation measures are required for Swainson's Hawk:

3.2.1d If construction activities occur between April 1st and August 31st, a survey for active Swainson's hawk nests shall be conducted along the proposed alignment according to the CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California by a qualified wildlife biologist. The survey shall be limited to trees within 500 feet of the proposed alignment.

3.2.1e If active nests are detected and potential impacts are identified, measures that will avoid or mitigate impacts will be implemented. Avoidance measures may include, but are not limited to, establishing buffer zones around nests and retaining a qualified wildlife biologist to monitor active nests during construction.

Significance After Mitigation

Less-than-significant.

Impact

3.2.2 Construction of the outfall along the eastern bank of the San Joaquin River could result in potentially significant adverse impacts to native fisheries. (Potentially Significant)

Construction of the proposed outfall along the San Joaquin River may contribute to sedimentation within the San Joaquin River potentially impacting native fisheries by interfering with feedings, reductions in primary or secondary production, or by reducing the survival of eggs and alevins. This would be a potentially significant effect.

As outlined in Chapter 2.0, prior to construction of the proposed outfall structure, the City will obtain a nationwide permit (NWP 7) for coverage under Section 404 of the CWA. In addition, the City will be required to obtain a Section 401 water quality certification from the RWQCB as part of the 404 permit. To comply with state regulations for construction of the proposed outfall, the City will enter into a Streambed Alteration Agreement with the CDFG. The acquisition of the requirement permits in conjunction with the implementation of mitigation measures 3.2.2a and 3.1.1, impacts to native fisheries would be reduced to a less-than-significant level.

Mitigation Measures

3.2.2a Construction activities along the banks of and within the San Joaquin River will, to the extent feasible, be limited to the period between June 1st and August 31st, the period during which impacts to native fisheries are not likely to occur.

3.2.2b Implement Mitigation Measure 3.1.1.

Significance After Mitigation

Less-than-significant.

Impact

3.2.3 Based on the habitats present in the Project area, several special-status species may be impacted by the Proposed Project. (Potentially Significant).

Western Burrowing Owl. Burrowing owls may nest in burrows or debris piles found along the levees on either side of the San Joaquin River, along the unlined banks of the Harding Drain, and along disturbed grassland habitat associated with the proposed alignment. Proposed construction activities may directly affect burrowing owl nest sites, thereby reducing the viability of local populations. To minimize this potential effect, mitigation measures 3.2.4a through 3.2.4d are proposed.

Ferruginous Hawk, and White-Tailed Kite. These bird species may be temporarily impacted by the temporary removal of potential foraging habitat for these species during pipeline construction. This impact would be the same as described for Swainson's hawk in Impact 3.2.1. As with Swainson's hawk, this impact would be temporary in nature and a less-than-significant impact would occur.

San Joaquin Whipsnake. The alkali grassland habitat located along the eastern edge of the San Joaquin River levee provides suitable habitat for this reptile. Trenching activities associated with the proposed San Joaquin River alignment may harass or directly take this species. In order to minimize potential effect, mitigation measure 3.2.4c is proposed.

Northwestern and Southwestern Pond Turtles. Marginal habitat for northwestern and southwestern pond turtles occurs within the canals/ditches, Harding Drain and in aquatic habitat associated with the San Joaquin River. Potential impacts to this species would be similar to those described for the giant garter snake — potential for direct take or harassment due to construction activities. To compensate for these potential impacts, mitigation measure 3.2.3d is proposed.

Mitigation Measures

3.2.3a Prior to construction, the proposed alignment (San Joaquin River levee, Harding Drain banks, and grassland habitat areas) shall be surveyed by qualified biologist for burrowing owls using established CDFG protocols (Appendix F).

3.2.3b If burrowing owls are detected within the construction zone, mitigation that will avoid active nest sites or compensate for the loss of nest sites shall be developed in coordination with CDFG.

3.2.3c A qualified biologist shall survey the proposed pipeline trenching and aeration facility construction site within the annual/alkali grassland habitat for the presence of San Joaquin whipsnakes. The survey shall take place no more than 24 hours prior to construction. If a snake is detected by the survey, no construction shall take place until the snake has left the construction area and CDFG shall be notified for proper guidance. The performance standard for this action is that no snake shall be harassed or taken.

3.2.3d Implement all mitigation measures listed for giant garter snakes. Biological monitors present during canal/ditch crossing construction shall also monitor for northwestern and southwestern pond turtles on the site, and pre-construction surveys shall also target northwestern and southwestern pond turtles.

Significance After Mitigation

Less-than-significant.

Impact

3.2.4 Based on the habitats present in the project area, several special-status plant species may be impacted by the Proposed Project. (Potentially Significant).

Special-status plant species found in the project area are those associated with alkaline habitats and may include Heartscale, Brittlescale, and San Joaquin spearscale. No special-status plant species were observed during ESA's site reconnaissance of the proposed alignment. However, based on soil conditions near the San Joaquin River, these plants may occur in the vicinity of the proposed alignment or aeration facility. Implementation of the prescribed mitigation would reduce this impact to a less-than-significant level.

Mitigation Measures

3.2.4a Prior to construction of the Proposed Project, the proposed alignment and aeration facility location west of Carpenter Road, shall be surveyed by a qualified botanist for special-status plants at the appropriate flowering period (May–July) using established CNPS protocols.

3.2.4b If special-status plants are detected within the construction zone or the immediate vicinity, mitigation that will avoid impacts within 50' of these plants or compensate for unavoidable impacts to habitat shall be developed in coordination with CDFG. Mitigation may include protection of existing rare plant occurrences and habitats by rerouting the alignment or protecting other alkaline wetland habitats in the area where they may occur at a 2:1 ratio using existing Mitigation Banks.

Significance After Mitigation

Less-than-significant.

Impact

3.2.5 The Proposed Project may result in the temporary fill of "other" waters of the U.S. Potential wetland areas located along the proposed alignment and aeration facility

include areas on the inboard-side of the eastern levee of the San Joaquin River. (Potentially Significant)

While these wetland features have not been verified by the ACOE as waters under the jurisdiction of Section 404 of the CWA, field reconnaissance indicates they likely are jurisdictional. As previously indicated, the City would seek coverage under Section 404 of the CWA for construction of the proposed outfall. This would include the acquisition of a Section 401 water quality certification from the RWQCB. Construction of the outfall would also require entering into a Streambed Alternation Agreement with CDFG as required under Section 1601 of the State Fish and Game Code. Compliance with these permits and implementation of the prescribed mitigation would reduce impacts to wetlands to a less-than-significant level.

Mitigation Measures

3.2.5a Fill of wetland areas will be minimized wherever possible. Temporary construction fencing will be erected around the Project site to reduce the potential of incidental fill.

3.2.5b Following pipeline construction, wetland/stream crossings shall be restored to pre-construction contours. Areas exposed due to construction shall be re-vegetated using a mix of native vegetation.

Significance After Mitigation

Less-than-significant.

Impact

3.2.6 Removal of nesting raptors or their nests, or causing the abandonment of nests for these species due to construction activities would be considered a potentially significant impact. (Potentially Significant)

Implementation of the Proposed Project has the potential to cause raptor species to abandon their nests. Construction on the project site may eliminate potential nest sites. Potential nesting sites are located along the proposed alignment. In addition, potential nest sites are located along the west bank of the San Joaquin River. Although no nesting raptors were detected during field visits, foraging raptors were observed, and these visits were not formal or protocol surveys.

Mitigation Measures

3.2.6a If construction activities occur between March 15th and September 15th (the raptor breeding season), a survey for active nests of raptors shall be conducted by a qualified wildlife biologist at the project site and within a 500 foot buffer

surrounding the site. These surveys should be integrated with pre-construction surveys conducted for Swainson's Hawk.

3.2.6b Implement Mitigation Measure 3.2.1e.

Significance After Mitigation

Less-than-significant.

3.3 LAND USE AND AGRICULTURE

This section provides an overview of existing land use patterns in the project area and addresses issues related to the project's conformance with local and regional plans and policies. In recognition of the rural landscape of the project area and agricultural land use pattern, this section also assesses the effects of the Proposed Project on local agriculture. The following evaluation is based on review of local and regional land use plans and policies, and field reconnaissance of the proposed facility sites.

3.3.1 SETTING

EXISTING LAND USE

Land use within the project area is characteristic of rural portions of the central San Joaquin Valley and unincorporated sections of Stanislaus County west of the City of Turlock and east of the San Joaquin River. From an aerial perspective, the numerous linear irrigation and drainage canals that flow to the west towards the San Joaquin River depict the dominant landscape feature. Irrigated pasture, row crops, various agricultural structures, dairies, and scattered rural residences dominate the land use pattern for a majority of the project area. Urban-type land uses are generally situated to the east of the project area in the City of Turlock and along State Route 99 (SR 99).

The proposed pipeline would originate at the City's current discharge location situated along the Harding Drain at Prairie Flower Road and travel west along Harding Road ROW to the San Joaquin River. Land use along the Harding Road consists of irrigated pasture, dairy feed lots, rural residential lots, and a tallow plant. As Harding Road transitions from the north to the south of the Harding Drain at several locations, the pipeline would follow these transitions to stay within the existing ROW. The pipeline would traverse immediately south of the Harding Drain starting from Prairie Flower Road to Central Avenue, after which, it transitions to the northern side of the drain until the intersection of Crows Landing Road. In some instances, the pipeline would be installed within 50 feet of some rural residences along this section alignment. West of Crows Landing Road, the proposed alignment would transition back to the southern side of the drain and cross private property generally used of irrigated pasture. A tallow plant (or: rendering facility) is located at the northeast corner of the intersection of Harding Road and Carpenter Road. The pipeline would eventually discharge at the aeration structure as depicted in **Figure 2-2**. Areas west of the eastern levee of the San Joaquin River are designed for open spaces uses under the Stanislaus County General Plan.

As indicated in Chapter 2.0, a pump station would be constructed on a vacant lot located at the southeastern corner of the intersection of Prairie Flower Road and Harding Road. The site is currently vacant with no existing structures and is used for irrigated pasture. The site is identified by the Stanislaus County Assessors Office as assessors parcel number (APN) 058-031-011 and is zoned A-2-40 (Stanislaus County, 2001).

The proposed aeration facility to the San Joaquin River would be constructed approximately 120 feet upstream of the Harding Drain (see **Figure 2-3**). This area is designated as open space in the Stanislaus County General Plan. The aeration facility will consist of a cascade structure that covers approximately 3,000 square feet with a vertical rise of approximately 12 to 20 feet (refer to **Figure 2-4** for an illustration of the outfall structure). The submerged outfall structure would be installed on the river-side of the eastern San Joaquin River levee approximately 560 feet upstream of the Harding Drain. The State Reclamation Board maintains jurisdiction over the levee and therefore, the construction of the outfall will require approval from the Reclamation Board. Given that the outfall structure would be submerged in the riverbed, the City will also be required to acquire a lease from the State Lands Commission.

AGRICULTURAL RESOURCES

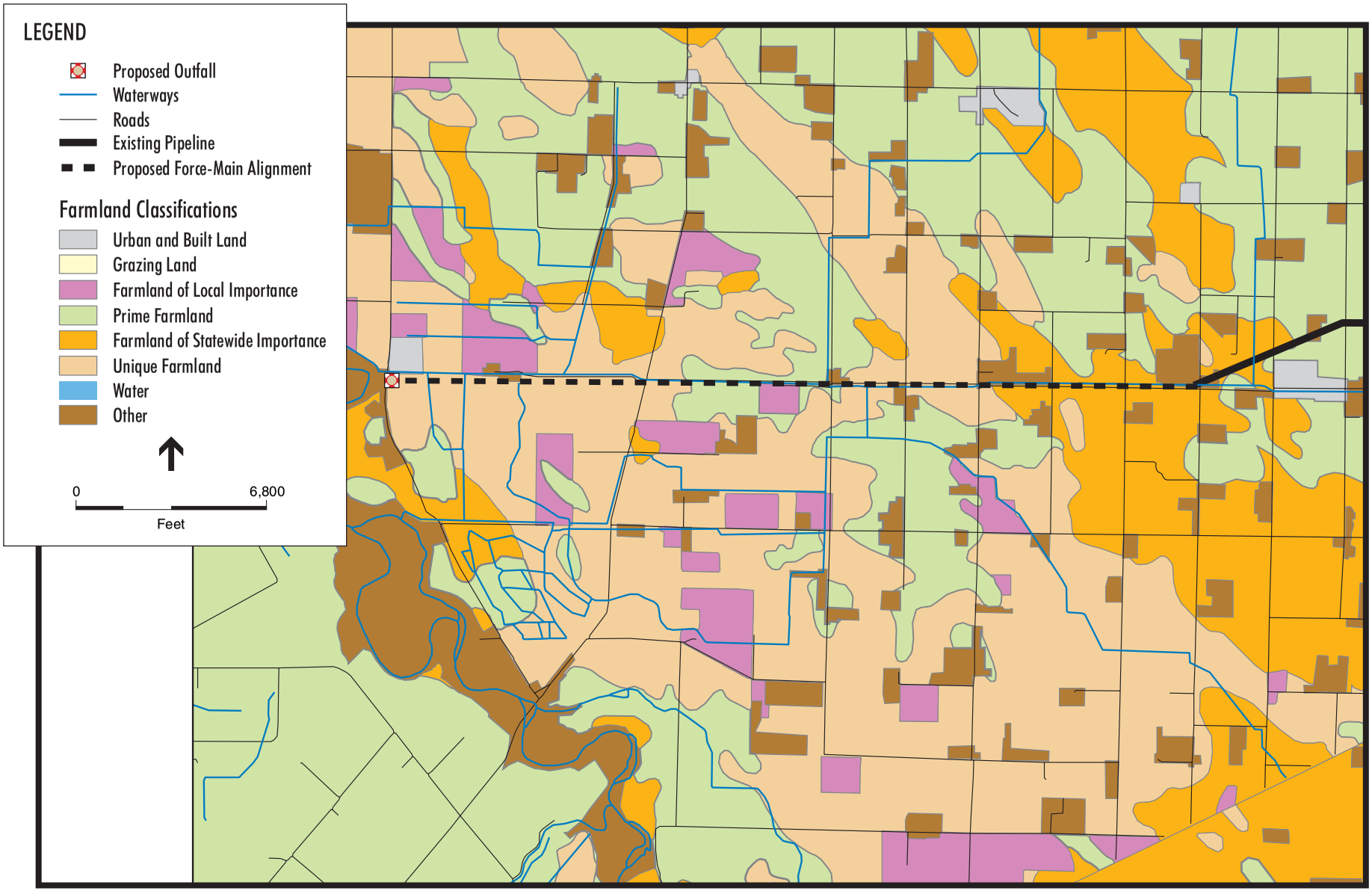
In 2001, Stanislaus County was ranked 7th of the 58 counties with respect to production of agricultural goods, earning $1.353 billion for the economy of the State of California (State of California, 2002a). This figure represents a 13.0 % increase in the County from the previous year (California Department of Food and Agriculture, 2002). Milk and almonds were the top commodities in Stanislaus County, producing $476,255,000 and $137,060,000 in 2001 (California Department of Food and Agriculture, 2002). Other high valued commodities produced in the County include tomatoes, grapes (vineyards), field grains, walnuts, peaches, market corn, and grain.

One of the main factors contributing to the agricultural productivity within the project area is the availability of water. With an average annual rainfall of only 12 inches per year, agriculture in this area depends almost entirely on irrigation. Irrigation began in the area with the formation of the TID in 1901. In that year 3,757 acres were irrigated (U.S. Department of Agriculture Soil Conservation Service, 1957). Today, four irrigation districts serve the area, delivering around 740,000 acre-feet of water annually diverted from the Tuolumne River, the Central Valley Project, and various groundwater wells. Cropland is generally irrigated via sprinkler systems, drip irrigation, or flooding.

Local Farmland Quality

The Important Farmland map produced by the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) for Stanislaus County indicates that a vast majority of the land base traversed by the project area is considered Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. These farmland designations for the project area are illustrated in **Figure 3.3-1**. Smaller pockets of Farmland of Local Importance are also scattered throughout the project vicinity.

Prime farmland, as defined by the U.S. Department of Agriculture, is "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses." Farmland of Statewide Importance includes lands that are nearly prime farmland and may produce as high a yield when treated and managed according to acceptable farming methods. Some lands in this category may include those that are



SOURCE: Teale Data Center and Environmental Science Associates, 2004

Figure 3.3-1
Farmland Designations

set aside by state law for agricultural purposes. Unique Farmland is land of lesser quality soils used for the production of the state's leading agricultural commodities, and Farmland of Local Importance is irrigated pasture and farmland that grows dry land pasture and small grains.

3.3.2 REGULATORY BACKGROUND

Regulation of land use and development within the project area is provided at various levels of government at the regional, state, and federal levels. An overview of land use regulation at each applicable level of government, state and local, in the identified project area is provided below.

STATEWIDE REGULATION

California Land Conservation Act

Under the provisions of the Williamson Act (California Land Conservation Act 1965, Section 51200), landowners contract with the County to maintain agricultural or open space use of their lands in return for reduced property tax assessment. The contract is self-renewing and the landowner may notify the County at any time of intent to withdraw the land from its preserve status. Withdrawal involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses. Consequently, land under the Williamson Act Contract can be in either a renewal status or a nonrenewal status. Lands under a nonrenewal status indicate that the farmer has withdrawn from the Williamson Act Contract and is waiting for a period of tax adjustment for the land to reach its full market value. This is often referred to as the 10-year sunset period. Nonrenewal lands are candidates for potential urbanization within the next ten years; whereas lands under cancellation are presumed ready for immediate urbanization depending on current market conditions.

According to data produced by the California Department of Conservation's Division of Land Resource Protection for 2001, 689,633 acres within Stanislaus County are under the provisions of a Williamson Act contract (State of California, 2002b). This figure includes both continuing term and nonrenewal contracts on both Prime and nonprime Farmland. The pump station would be constructed on land currently under the provision of a Williamson Act Contract No. 0913. It is highly probable that other parcels within the project area are under existing contracts, however, spatial data indicating the location of these properties was not available for this analysis. Information for Stanislaus County indicates that for the year 2000, 687,393 acres of Prime and nonprime Farmland were under an existing contract (State of California, 2002b). Thus, data for 2001 indicates that there was a 2,240 acre net gain in the amount of land under a Williamson Act contract. From this data, its can be inferred that a majority of the property owners within the County filed renewal notices for 2001, thereby maintaining their existing contract obligations.

California Farmland Mapping and Monitoring Program

The California Department of Conservation, under the Division of Land Resource Protection, has set up the FMMP which monitors the conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications and uses a minimum mapping unit size of 10

acres. The Program also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The Program maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two years (California Department of Conservation, 2000).

The FMMP is an informational service only and does not constitute state regulation of local land use decisions. Four categories of farmland, Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, are considered valuable and any conversion of land within these categories is typically considered to be an adverse impact. **Figure 3.3-1** presents a spatial illustration of all the agriculturally designated lands within the project area. **Table 3.3-1** provides farmland conversion statistics for the project area from 1998–2000. Data provided for Stanislaus County indicates that approximately 2,181 acres of agricultural land were lost to non-agricultural use as of 2000 (State of California, 2002c).

TABLE 3.3-1
FARMLAND CONVERSION FROM 1998–2000
IN STANISLAUS COUNTY

Land Use Category	Total Acres Inventoried		1998-2000 Acreage Changes		
	1998	2000	Acres Lost	Acres Gained	Net Change
Prime Farmland	166,558	165,364	1,835	641	-1,194
Farmland of Statewide Importance	27,398	27,753	379	734	355
Unique Farmland	48,994	53,305	239	4,550	4,311
Farmland of Local Importance	37,650	34,328	3,385	63	-3,322
Grazing Land	116,645	114,314	2,507	176	-2,331
Agricultural Land Subtotal	**397,245**	**395,064**	**8,345**	**6,164**	**-2,181**

SOURCE: California Department of Conservation, Division of Land Resource Protection, 2002; (Tables A-14 and A-38)

State Lands Commission

The State Lands Commission manages the public land owned by the State of California, which includes submerged lands and the beds of navigable rivers and streams. The state land is the area within the ordinary low water marks on the riverbanks. The Commission manages the land for the benefit of the people of the state, subject to the public trust for water-related uses and may not issue a lease if it is detrimental to "significant environmental values," which are established through the CEQA process. The Commission's Significant Lands Inventory identifies the following values for the San Joaquin River: biologic, aesthetic, fish spawning, critical ecosystem, fishery, wildlife support, and recreation. The Commission has categorized the San Joaquin River lands in use category "B" or "Limited Use," which allows use that is "compatible with and non-consumptive of" the significant environmental values that are present.

LOCAL REGULATION

In California, land use planning is primarily the responsibility of local government. All cities and counties in California are required by the State to adopt a General Plan to establish goals, policies, and implementation measures for long-term development, protection from environmental hazards, neighborhood preservation, conservation of identified natural resources, and accommodating urban development.

The principal means of implementing the goals and policies presented in the General Plan of a city or county is its zoning ordinance, which identifies use zones in the jurisdiction, the land uses permitted on a given site, and the standards for each permitted use according to zone. The zoning ordinance is required by state law to be consistent with the General Plan.

Stanislaus County General Plan

The 1994 Stanislaus County General Plan governs land use activities in unincorporated portions of Stanislaus County. The Land Use Element of the General Plan provides land use designation within the County. The overall focus of the Agricultural Element is on the mitigation of economic and environmental impacts resulting from the conversion of productive agricultural lands and the deterioration of air, soil and water resources that support local agriculture.

The Proposed Project would be exclusively constructed within the unincorporated, southern portions of the County and therefore, would be subject to applicable policies and implementation measures of the General Plan. As previously mentioned under the existing land use discussion, much of the land base in unincorporated, southern Stanislaus County is devoted to agricultural uses according to the General Plan Land Use Diagram. According to the General Plan Land Use Diagram the proposed project would traverse lands designated as Agriculture (Stanislaus County, 1994). The channel and associated floodway of the San Joaquin River is designated as Open Space.

The agricultural land use designation recognizes the value and importance of agriculture by acting to preclude incompatible urban development within agricultural areas. It is intended for areas of land which are presently or potentially desirable for agricultural usage. These are typically areas which possess characteristics with respect to location, topography, parcel size, soil classification, water availability and adjacent usage which, in proper combination, provide a favorable agricultural environment. This designation establishes agriculture as the primary use in land so designated, but allows dwelling units, limited agriculturally related commercial services, agriculturally related light industrial uses, and other uses which by their unique nature are not compatible with urban uses, provided they do not conflict with the primary use. The Agriculture designation is also consistent with areas the overall General Plan has identified as suitable for open space or recreational use and for ranchettes.

All underground water and/or other pipelines (e.g., sanitary sewer) structures permitted to be installed in, along or across County ROW are subject to the conditions imposed in Sections 13.04.140 through 13.04.190. of Title 13 of the County Code. Applications for permits must

provide the following information: 1) estimated cost of installing the underground pipe; 2) a brief description of the proposed excavation and installation; 3) maps depicting the location of the alignment; 4) estimated time of installation; 5) necessity for excavating in a county highway or other public place; and 6) proposed commencement date.

Turlock Irrigation District

The TID's jurisdiction includes numerous right-of-ways within the project area consisting of a vast system of irrigation and drainage canals. Any work within the right-of-way of a TID corridor is subject to TID Engineering Standards governing allowable actions, facility crossing, required inspections, and modifications to the right-of-way. TID issues a Revocable License Agreement (RLA) to encroach on land within their jurisdiction to ensure encroachment is compatible with the primary uses of the irrigation system, ensure safety, and to protect the TID's investment in the irrigation system. The encroachment permit requirement applies to persons, corporations, cities, counties, utilities, and other government agencies.

3.3.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The impact analysis presented below evaluates potential project impacts on current land uses and agricultural operations as a result of facility siting, construction, and/or operation. Impact significance criteria are presented for each of these phases of impact. The following significance criteria have been developed based on guidance provided by CEQA *Guidelines* Appendix G – Environmental Checklist / Initial Study Form, and Lead Agency (City of Turlock) input. Implementation of the Proposed Project would result in a significant impact if it would:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- Result in land uses that are incompatible with existing and planned land uses adjacent to project facilities;
- Result in substantial nuisance effects on sensitive land uses that would disrupt use over an extended time period;
- Result in the disruption or division of the physical arrangement of an established community;
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use; or
- Conflict with existing zoning for agricultural use, or a Williamson Act Contract.

METHODOLOGY

Land use impacts associated with the Proposed Project would, in most instances, be short-term and occur during the construction phase of those activities. Construction activities could result in temporary disruptions to adjacent land uses resulting from nuisance effects such as noise, dust, construction traffic, and possible interference of access to locations adjacent to construction activities. Additionally, the proposed alignment may require the removal or relocation of existing improvements. Once operational, the project would have negligible long-term or permanent land use impacts, expect from the presence of the proposed pump station and aeration facility. Issues relating to nighttime lighting and potential noise are discussed in Sections 3.7 (Noise) and 3.11 (Aesthetics and Recreation). Construction areas would be restored to pre-project conditions, with the exception of the proposed outfall and pump station, which would be constructed according to the methods outlined in Chapter 2.0, Project Description.

IMPACT ANALYSIS

Impact

3.3.1 The Proposed Project would generally be consistent with applicable land use goals, policies, and objectives of the City's General Plan. Additionally, the Proposed Project would generally conform with land use polices and zoning designations established for the project area by Stanislaus County. (Less-than-Significant)

To implement the Proposed Project, the City would be required to obtain encroachment permits from Stanislaus County to work in public roadway ROW and cross TID-operated irrigation/drainage canals. All auxiliary facilities constructed as part of the Proposed Project (e.g., outfall, pump station, post aeration structure) would require the acquisition various permits and/or leases, as identified in Table 2-1, from the applicable jurisdiction (e.g., TID, Stanislaus County, etc.). This may require minor alternations to the project to ensure consistency with local zoning regulations and other policies governing land use. If possible, the City, in coordination with the County, will coordinate the installation of the Proposed Project concurrently with other planned infrastructure improvements to avoid multiple disturbances within public ROW. Given that the project would incur modest water quality benefits to the San Joaquin River, the project would be consistent with the State Water Resource Control Board's Basin Plan for Region Five and the Delta Protection Plan.

Chapter 21.20 of the Stanislaus County Zoning Code outlines permitted uses for the General Agriculture District (A-2). A review of Section 21.20.030 (i) indicates that public buildings or other facilities operated by political subdivisions are considered Tier Three uses would require a use permit and approval from the Planning Commission prior to development within the A-2-20 zone. Tier Three uses are considered consist when the Planning Commission finds that (1) the use as proposed will not be substantially detrimental to or in conflict with agricultural use of other property in the vicinity, and (2) the parcel on which such use is requested is not located in one of the County's "most

productive agricultural areas[1]." Once constructed, the proposed pump station would not interfere with adjacent agricultural uses. However, given the broad definition for "most productive agricultural areas," the subject property could be classified as such since it satisfies several of the prerequisites (e.g., Williamson Act). However, given the small lot area required for the pump station (less than one acre), the use would still generally be consistent with the intent of the A-2 zone.

Based on this evaluation, the project is considered generally consistent with applicable City and County General Plan and other regional plan polices. In light of this finding, the Proposed Project would not conflict with any local or regional polices adopted for the purpose of avoiding or mitigating significant environmental effects. As consequence, the impact is considered less-than-significant.

Mitigation Measure

No mitigation is required.

Impact

3.3.2 Implementation of the Proposed Project would result in short-term construction impacts in the form of dust, noise, and traffic and access disruption to local residents located in close proximity to the proposed alignment. (Potentially Significant)

It is recognized that short-term construction activities would result in temporary land use conflicts along each section of the proposed alignment. Land use along the alignment consists of mainly irrigated pasture, with scattered rural residences. In some locations, however, a higher concentration of local residences was noted during the site reconnaissance. Typical agricultural operations adjacent to the alignment include dairies, pasture, row crops, and a tallow plant. Construction activities would result in short-term, localized increases in noise and dust levels, and traffic and access disruption. These temporary nuisance effects would likely impact local residents until construction operations are completed and the original surface is restored. This would be a potentially significant impact.

Pipeline installation is projected to progress at a rate of up to 700 to 1,000 feet per day. Thus, in most areas along the alignment construction activity would be in close proximity for roughly a week. Construction of the pump station and the post-aeration structure would take roughly one to two months. As consequence, construction of the pipeline and pump station is not expected to disrupt nearby land uses along the alignment for extended periods of time. Construction of the aeration structure and submerged outfall would

[1] In determining "most productive agricultural areas," factors to be considered include but are not limited to soil types and potential for agricultural production; the availability of irrigation water; ownership and parcelization patterns; uniqueness and flexibility of use; the existence of Williamson Act contracts; existing uses and their contributions to the agricultural sector of the economy. "Most productive agricultural areas" does not include any land within LAFCO-approved spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities (Section 21.20.030 of the Stanislaus Zoning Code).

occur in a relatively undeveloped location and would not be within close proximity to any existing residences. In this context, with the implementation of the prescribed mitigation, disruptions to the local community during construction would be reduced to a less-than-significant level.

Chapters 3.6 (Air Quality), 3.7 (Noise), and 3.8 (Transportation and Traffic Circulation), address the potential impacts on nearby land uses that could result from construction-related dust, construction vehicle emissions, noise, and traffic disruptions, respectively. Mitigation measures provided in Chapters 3.6, 3.7, and 3.8 in conjunction with those prescribed below, impacts resulting from potential land use conflicts would be reduced to a less-than-significant level.

Mitigation Measures

3.3.2a The City of Turlock shall require its construction contractor to provide a minimum 2-week advance notice of the construction activities schedule to the affected community members adjacent to construction areas (e.g., residences, property owners, business owners, and public facility operators), including the posting of signs.

3.3.2b The City of Turlock, in cooperation with its contractor(s), shall provide a phone number and community contact for inquiries about the project's schedule throughout the construction period. This information will be posted in a local newspaper and at City Hall and will be updated on a weekly basis.

3.3.2c The City and its contractor(s) shall coordinate with local jurisdictions and obtain all necessary permits (e.g., encroachment permit, utility excavation permit), comply with permit conditions established to minimize construction impacts, and coordinate inspections with Stanislaus County to oversee construction activities.

3.3.2d Implement San Joaquin Valley Air Pollution Control District required fugitive dust control measures, Mitigation Measure 3.7.1a through d, and Mitigation Measure 3.8.1a through e.

Significance After Mitigation

Less-than-significant

Impact

3.3.3 Implementation of the Proposed Project could result in the displacement of existing improvements during construction-related activities. (Potentially Significant)

Removal or relocation of material storage areas, landscaping, mailboxes, fences and walls, driveways, potable water wells and other structures located within the proposed

alignment could be required during project construction. Construction could also require the removal of pasture fences and structures, and disrupt existing agricultural activities. The removal or relocation of these existing improvements is considered a potentially significant impact since it could disrupt the physical arrangement of an established community.

Mitigation Measure

3.3.3 The City's contractor shall, as part of the right-of-way surveys and final design work, identify all mailboxes, walls, fences, driveways, potable water wells and landscaping located in the alignment and prepare a relocation and replacement plan for each to address impacts resulting from displacement of existing improvements in the pipeline alignment.

Significance After Mitigation

Less-than-significant

Impact

3.3.4 Construction of the Proposed Project could impact farmland and/or adjacent agricultural operations. Additionally routine maintenance over the long-term could further impact these operations. (Potentially Significant)

The proposed pipeline alignment would generally follow along existing roadways from the existing outfall location to the proposed outfall. The land portions located between Crows Landing Road and Carpenter Road are currently under agricultural production. Based on review of aerial photographs and field reconnaissance, these agricultural areas include mainly irrigated pasture and a tallow plant. Although the pipeline would be buried, construction activities would require the removal of existing irrigation structures and topsoil. Following construction, the pipeline would be buried at a sufficient depth to enable continued agricultural operations. This temporary loss in agricultural productivity along the proposed alignment would be considered a potentially significant impact. Construction of the pump station would also lead to loss of less than one acre of irrigated pasture, as described further in Impact 3.3.5. Implementation of the prescribed mitigation would mitigate impacts to local agricultural operations to a less-than-significant level.

Mitigation Measure

3.3.4 Restore affected lands to pre-project conditions.

The City shall consult with all affected land owners where the proposed alignment would cross productive farmland. As part of the easement acquisition process, the City and affected landowners shall negotiate an agreed-upon compensation for the loss of any existing pasture and/or row crops currently in production. During these consultations the City shall also, in conjunction with landowners' input, identify areas along the ROW that

could be left in agricultural production as well as locations for access gates to allow for city staff access. Access gate locations shall be included in the final design plans for the Proposed Project. Compensation for the loss of crops and associated revenues will be up to the provisions of law.

Significance After Mitigation

Compliance with the above-mentioned notification and compensation process would mitigate these temporary impacts to a less-than-significant level.

Impact

3.3.5 The Proposed Project would result in minimal conversion of Important Farmlands, as identified by the Department of Conservation, to non-agricultural use. (Potentially Significant)

The Proposed Project would traverse through local agricultural lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on maps prepared pursuant to the FMMP (see **Figure 3.3-1**). These lands would be temporarily impacted during construction. However, following pipeline installation, these areas would be restored to pre-project conditions, thereby ensuring continued agricultural cultivation. However, in case of the pump station and the post aeration structure, the project would require acquisition and conversion of up to one acre of Farmland of Statewide Importance to non-agricultural use, as shown on maps prepared pursuant to the FMMP. As shown in Table 3.3-1, there was approximately 27,573 acres of Farmland of Statewide Importance within the total of 395,064 acres of agricultural land in 1999–2000 in Stanislaus County and, therefore, the conversion of one acre would not result in a significant project-level impact. With the implementation of Mitigation Measure 3.3.4, this impact is considered less-than-significant. The analysis presented in Chapter 6.0, provides a discussion of the cumulative implications of the project's impacts to regional agricultural resources.

Mitigation Measure

3.3.5 Implement Mitigation Measure 3.3.4.

Significance After Mitigation

Less-than-significant.

Impact

3.3.6 Implementation of the Proposed Project would conflict with an existing Williamson Act contract. (Less-than-Significant)

Construction of the Proposed Project pipeline would be located primarily within existing roadway ROW with the exception of a small section of agricultural land along the alignment adjacent to the San Joaquin River. This would require a temporary construction easement and a permanent easement. No existing Williamson Act Contracts are on file for areas borders the San Joaquin River in the vicinity of the project.

Construction of the proposed pump station would occur on land currently protected by Williamson Act Contract No. 0913. Although it is likely that the proposed force main may border various parcels currently under Williamson Act contracts, the installation of the underground pipeline along the periphery of agricultural lands would not have a substantial effect on productivity of the land and would not require contract cancellation. For instances where the proposed project would affect contracted lands, such as the pump station site, the Williamson Act has specific provisions for acquisition of contracted land for public improvements. Article 6 of the Williamson Act (Government Code Sections 51290–51295) provides that a public entity may acquire land within an agricultural preserve for a public improvement through eminent domain or in lieu of eminent domain, and that this action terminates the contract. Specific provisions define procedures that the agency must follow in notifying the Director of the California Department of Conservation (CDC), conditions under which a public improvement may not be located within a preserve, and public improvements, which are exempt from these conditions. A summary of the relevant provisions is provided below:

1. Notification Provisions. At the time a public agency is considering locating a public improvement within an agricultural preserve, notice must be sent to the Director of the CDC and the local governing body responsible for administration of the contract. The notification must include the total number of Williamson Act acres to be acquired and whether or not they include Prime Farmland; the purpose of the acquisition and why the parcel was selected; the location; characteristics of adjacent land; location maps; copies of the contract; and an explanation of the findings (see below).

2. Findings. A public agency shall not locate a public improvement within an agricultural preserve unless the following findings are made:

    - The location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve; and

    - If the land is Prime Farmland covered under a contract pursuant to Article 6 for any public improvement, that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement.

In addition to these requirements and as required by Government Code Section 51238.1, the County Planning Commission and/or Board of Supervisors are required to evaluate whether the uses requiring a use permit (e.g., pump station) on lands under California Land Conservation Contracts (Williamson Act Contracts) are consistent with all of the following principles of compatibility:

1. The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district.

2. The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.

3. The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Based on overall intended use of the pump station, it is reasonable to conclude that the pump station will be consistent with these principles of compatibility. Furthermore, the area required for the pump station would only affect an extremely small percentage (0.00002 %) of the current agricultural land base within Stanislaus County. As previously indicated, the subject property is not identified as prime farmland. In addition, the City is required by law to adhere to the provisions of Article 6 of Government Code Sections 51290–51295. With this understanding, the Proposed Project would not significantly conflict with an exiting Williamson Act contract and the impact is considered less-than-significant.

Mitigation Measure

No mitigation is required.

3.4 PUBLIC SERVICES AND UTILITIES

This section provides a generalized description of the public services and utilities potentially affected by the Proposed Project and a brief overview of the entities that provide them (e.g., cities, counties, special districts, water agencies, and power companies). These services and utilities include electricity, domestic and irrigation water, sanitary and stormwater sewers, solid waste, communications and natural gas. The impact analysis places focus on whether the Proposed Project would result in disruptions and/or decreases in current service levels.

3.4.1 SETTING

The proposed project would traverse unincorporated sections of Stanislaus County. Based on action outlined in Chapter 3.0, a description of potentially affected public and/or private utility and service providers is provided below.

COUNTY OF STANISLAUS

Stanislaus County is comprised of nine incorporated cities (including the County seat of Modesto) as well as many unincorporated areas. Stanislaus County is a member of the National Association of Counties (NACO), an organization that provides a line of services including legislative, research, technical, and public affairs assistance, as well as enterprise services to its members.

Water and Wastewater Service

As described in Chapter 2.0, the City's Municipal Services Department provides sewer and water services to the residents within the incorporated city-limits and under contract to other near-by unincorporated communities. Private wells are the main source of potable water service in the project area, with on-site septic systems serving as the most common form of wastewater disposal.

Solid Waste

The Sanitary Landfill Division of the County Department of Public Works operates the County's only one landfill in operation, located at 4000 Fink Road, in western Stanislaus County. The landfill is three and a half miles west from the Town of Crows Landing and 25 miles southwest of the City of Modesto. The County owns and operates this facility as the successor to the closed landfill at Geer Road. Fink Road has been operating under Waste Discharge Requirements No. 94-257, issued by the RWQCB.

Electricity and Natural Gas

Stanislaus County's receives electric power from three primary suppliers: Modesto Irrigation District (MID), and TID. TID is a nonprofit, publicly owned utility that provides electric and irrigation services to all areas of Stanislaus County including areas south of the Tuolumne River

and east of the San Joaquin River. In Stanislaus County, TID serves the communities of Ceres, Turlock, Keyes, Denair, Hughson, Hickman, La Grange and South Modesto. TID serves 68,000 customers in a 450-mile area covering Stanislaus and Merced Counties.

TID is currently in preparations to contract its Westside Transmission Line Project, which consists of a 15.5-mile 115-kV transmission line across the San Joaquin Valley, an 8-acre 115/ 12-kV substation and storage yard south of Patterson, CA, and 1.8 miles of 12-kV distribution lines connecting the project to the existing electrical distribution lines in the project area. The area being acquired by TID is known as the Westside Zone and includes the project area. TID has completed its environmental review under CEQA for the project with construction scheduled for April 2004. Links 1-2 through 1-5 of the transmission line would be installed within the immediate project area.

Pacific Gas and Electric (PG&E) provides natural gas service for the project area. A review of Natural Gas maps fro the project area indicate that the project will not encounter any high-pressure gas mains. Natural gas lines encountered within the project alignment generally include 4-inch distribution lines.

Fire and Police

The Stanislaus County Sheriff's Department's main headquarters is located in Modesto and is comprised of six area commands. The Northeast Area Command provides services to the unincorporated area of the county and all nine incorporated cities. The Northwest Area Command includes the town of Salida. The Central Area Command encompasses Empire, the airport district, and all of South Modesto. The South Area Command encompasses the Cities of Denair and Keyes.

Contract city police stations are located in the cities of Patterson, Riverbank, Hughson and Waterford. Sub-Stations are located in the unincorporated communities of Crows Landing, Denair, Empire, Keyes, Knights Ferry and Salida. During the summer months, officers are staffed at Woodward and Modesto Reservoir County Parks.

Six radio console positions in the County operate 24 hours a day and dispatch for 23 law enforcement and fire agencies within Stanislaus County, including Modesto Police Department and the Stanislaus County Sheriffs Department. In 2001 Oakdale City Fire joined the dispatch operation. Currently, all fire and law enforcement dispatches are done from the dispatch center with the exception of Oakdale City Police, Ceres City Police, and Turlock City Fire and Police.

Medical Services

Stanislaus County has an extensive network of medical facilities and doctors. Level II Trauma Center resources in Modesto serve the surrounding region, and transportation is provided by two airborne ambulance services. Sutter Gould Medical Foundation provides access to primary care and specialty physicians in care centers throughout Stanislaus County. Sutter Gould is part of Sutter Health, one of the not-for-profit networks of community-based health care providers.

Memorial Medical Center in Modesto is a community-based, not-for-profit health care facility operated by Memorial Hospitals Association, a Sutter Health Affiliate. The hospital provides a full continuum of care, featuring diagnostic, emergency, surgery, outpatient and air ambulance services.

Air Ambulance Services in Stanislaus County include Medi-Flight of Northern California, an air ambulance helicopter service operated by Memorial Hospitals Association, serving residents of a five-county area.

Schools

Stanislaus County is home to California State University at Stanislaus and Modesto Junior College, one of the oldest colleges in California. Stanislaus County also offers Regional Occupational Programs, adult education courses, and many private educational institutions in the area.

Library

Stanislaus County has 13 branch libraries located in the cities and unincorporated communities of Modesto, Ceres, Denair, Empire, Hughson, Keyes, Newman, Oakdale, Patterson, Riverbank, Salida, Turlock, and Waterford.

Communications

Pacific Bell operates the local telephone network in Stanislaus County. The switching platform in the Stanislaus area is based on Lucent Technologies' 5ESS switching architecture. In almost all cases Pacific Bell uses fiber based SONET terminals. Most areas of Stanislaus County have SONET connectivity with Stockton and Merced. There are several inter-exchange carriers located in Stanislaus County including AT&T and Sprint.

Parks and Recreation

The Stanislaus County Parks and Recreation Department operates an array of recreational facilities and maintains approximately 10,000 acres of land and 6,000 acres of water. The Department's existing system consists of 25 county parks that include five regional parks, eight fishing accesses and eleven neighborhood parks that serve the unincorporated communities in the County. In addition, the County oversees the Tuolumne River Regional Park and parks operated by other agencies that are used by County citizens. Refer to Section 3.11, Aesthetics and Recreational Resources for a detailed discussion on recreational services within the project area.

REGULATORY SETTING

STATE WATER RESOURCES CONTROL BOARD

The Proposed Project would change the point of discharge for the City's treated wastewater from the Harding Drain, an artificial irrigation drain, to the San Joaquin River. The change will not

reduce flow in any portion of the San Joaquin River or any other natural watercourse, however, the State Water Resources Control Board has directed the City to file a petition to change the point of discharge pursuant to Water Code Section 1211, and the City will file the petition as directed. The State Board will rely on this EIR as a responsible agency in reviewing the petition pursuant to Section 1211, under which the petition must be approved if the proposed change is not likely to injure any other "legal user of water" within the meaning of Water Code Section 1700 et seq.

CITY OF TURLOCK

The City General Plan provides goals and polices related to the provision of adequate public services. The Proposed Project is considered necessary to comply with the City's current cease and desist order issued by the Regional Water Quality Control Board and future water quality objectives for the San Joaquin River and its tributaries. Guiding policies 4.3-b and 4.3-d require the City to coordinate the provision of capital public improvements and to address inadequacies in the existing wastewater collection and treatment systems (City of Turlock, 1992).

3.4.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Based on criteria derived from Appendix G of the *CEQA Guidelines*, the Proposed Project would have a significant effect on the environment if it would:

- Result in a substantial adverse physical impact associated with the provision of new or physically altered governmental facilities, need for new or physically altered government 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: fire protection, police protection, schools, parks, or other public facilities.

- Exceed wastewater treatment requirements of the RWQCB.

- 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.

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could have significant environmental effects.

- Not have sufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.

- Result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Not comply with federal, state, and local statutes and regulations related to solid waste.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact

3.4.1 Construction of the Proposed Project could result in substantial adverse impacts to the provision of governmental services, thereby adversely affecting current service ratios, response times or other performance objectives for local public service providers. (Potentially Significant)

Construction of the Proposed Project could result in increased response times for police, fire and medical services. Increased response times would primarily result from disruptions in normal traffic flows and the presence of construction crews. This impact is considered potentially significant.

Mitigation Measures

3.4.1a The City's construction contractor(s) shall provide a copy of the Traffic Control Plan to the Sheriff's Department, County Fire Department, and any private ambulance service providers for informational and coordination purposes prior to construction.

3.4.1b The City's construction contractor(s) shall provide 72-hour notice to the local service providers prior to construction of individual pipeline segments. Discussion on the Traffic Control Plan is provided in Section 3.8, Transportation and Traffic Circulation, under Measure 3.8.1a.

Significance After Mitigation

With the implementation of all the prescribed mitigation, this impact would be reduced to **less-than-significant** level.

Impact

3.4.2 Construction of the Proposed Project is not expected to require or result in the construction of new storm drain water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less-than-Significant)

The Proposed Project would be installed within existing road rights-of-way (ROW), except for areas west of Carpenter Road and the southeastern. With the exception of the proposed pump station and aeration structure, all project facilities would be located

underground following construction. As a consequence, little in the way of additional impervious surface area would result from the project as expanded on in Section 3.1, Water Resources. The proposed project would not necessitate the expansion of local storm water drainage system in the project area. Once operational, the Proposed Project is not expected to generate significant amounts of runoff that would exceed the capacity of existing facilities. For this reason, impacts to local drainage systems are considered less-than-significant.

Mitigation Measure

No mitigation required.

Impact

3.4.3 The Proposed Project would not increase water demand or change water supply availability. (Less-than-significant)

Implementation of the Proposed Project would not interfere with current groundwater supplies. Additional demands placed on water supplies would originate from development consistent with the County and City's adopted General Plan and not from the Proposed Project. For this reason, the Proposed Project would not result in any direct adverse affects to current water demand and/or supplies and the impact is considered less-than-significant. Potential indirect effects of the Proposed Project are discussed in Chapter 5.0, Growth Inducement.

Mitigation Measure

No mitigation required.

Impact

3.4.4 Materials that would need disposal as part of construction of the Proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. After construction, the project is not anticipated to generate significant amounts of solid waste beyond the current baseline condition. (Less-than-Significant)

Construction-related waste would be disposed of at the licensed landfill located in Crows Landing. This facility, Fink Road Landfill, is operated by the County and is licensed to accommodate the growth of the County and associated Cities, and possesses sufficient capacity to accommodate the project's solid waste along with that of projected development. In addition, at the public scoping session, several local residents expressed interest in taking some of the excess overburden for their dairy operations.

Mitigation Measure

No mitigation required.

Impact

3.4.5 Construction of the Proposed Project would comply with federal, state and local statutes and regulations related to solid waste. (Less-than-Significant)

The Proposed Project would comply with all federal, state and local statues and regulations pertaining to solid waste disposal. As under the baseline condition, the City's WQCF would continue to sell its biosolids as soil enhancers, and dispose of its other solid waste to the Fink Road Landfill.

Mitigation Measure

No mitigation is required.

Impact

3.4.6 Construction of the Proposed Project could encounter or affect under- and above-ground utilities and result in temporary interruptions in utility service. (Potentially Significant).

During construction of the Proposed Project, trenching operations associated with the pipeline's installation could encounter underground utilities. Without a clear understanding of the location and placement of existing utilities, trenching operations could come into contact with such utilities thereby disrupting service and potentially endangering construction workers. This impact is considered potentially significant.

Mitigation Measure

3.4.6 Underground utilities and service connections shall be identified by the City's construction contractor(s) prior to commencing any excavation work through the implementation of an underground services alert (USA). The exact utility locations will be determined by hand-excavated test pits dug at locations determined and approved by the construction manager (also referred to as "pot-holing"). Temporary disruption of service may be necessary to allow for construction. No service on such lines would be disrupted until prior approval is received from the construction manager and the service provider.

Significance After Mitigation

Less-than-significant.

3.5 CULTURAL RESOURCES

3.5.1 SETTING

NATURAL SETTING

The project is located in the San Joaquin Valley, the southern portion of the Great Valley geomorphic province. The Central Valley of California is characterized by broad alluvial plains dominated by annual grasslands and fresh emergent wetland habitats, interspersed with riverine environments. The topography of the project area, like much of the valley, is flat, with elevations ranging between 50 and 100 feet above mean sea level (msl). Geologically, the Central Valley is a northwest-trending trough that has been filled with an extremely thick sequence of sediments ranging in age from the Jurassic to the Recent originating from the surrounding mountain ranges—the Coast Ranges and the Sierra Nevada.

Prior to the development of valley agriculture, marshy wetlands surrounding sluggish waterways such as the San Joaquin River supported marshy or aquatic communities of tule (*Scirpus* sp.), cottonwood (*Populus fremontii*), sycamore (*Platanus racemosa*), and willow (*Salix* sp.) (Wallace 1978:448-449). Sparse oak groves occurred along some waterway and likely included interior live oaks (*Quercus wislizeni*) and valley oaks (*Q. lobata*) thus providing a portion of the vegetal food sources utilized by prehistoric populations.

This natural setting for the region has since experienced an enormous degree of cultural modification over a very long period of occupation. Much of the industrialization beginning in the late 19th century, alongside the growing agroeconomy, channelization of the sloughs for maritime use, and overall population growth, has created more of a human ecology than that of the natural alluvial basin grasslands and wetlands in centuries past.

PREHISTORIC CONTEXT

Although little is known concerning the earliest occupants of the Delta region, it is clear that much of the Great Valley and the riverine environments surrounding the meandering San Joaquin and Sacramento Rivers have been occupied throughout most of the Holocene Epoch (~10,000 B.P. [1] to the present). The reconstruction of pioneering cultures during the late Paleo-Indian to early Archaic Periods (~11,000 B.P. to ~4,000 B.P.) has proven difficult given the rapid erosional patterns of the Central Valley and the Delta in particular. These processes have redeposited or deeply buried the evidence of much of those primordial cultures. Much of the direct, dateable evidence for the San Joaquin Valley for this time period come from what has been called the Farmington Complex, placed tentatively at around 9,000 to 7,000 B.P. (Treganza, 1952). The assemblage consisted of core tools and flakes of olive-green chert, which would indicate a hunting-based diet, probably augmented by gathering. Farmington-type artifacts have been discovered since in other locations between the Cosumnes and Stanislaus River drainages

[1] Before Present.

(Johnson, 1967; Payen, 1973). However, given the scant physical evidence, much of our knowledge of these early peoples has been gleaned from environmental reconstructions of the region and through theoretical explanations for predicting human behavior in specific environmental settings.

As the early Archaic Period emerges, the number of human occupation sites began to increase in the record and have revealed artifact assemblages that have shaped much of the ethno-archaeological knowledge of the region. A three-part cultural chronological sequence, the Central California Taxonomic System (CCTS) was developed by archaeologists to explain local and regional cultural change in prehistoric central California from about 4,500 years ago to the time of European contact (Lillard, Heizer, and Fenenga, 1939; Beardsley, 1948, 1954). In 1969, several researchers who met at U.C. Davis worked out several substantive taxonomic problems that had developed with the CCTS. **Table 3.5-1** summarizes David Fredrickson's (1994) cultural periods model and provides CCTS classification nomenclature (such as "Early Horizon," etc).

Unfortunately, the utility of understanding cultural change by placing numerous cultures into a temporal horizon tends to reduce the cultural variation that more likely existed at any given time. In order to address this issue, Ragir (1972) suggested that the relatively uniform periods of Early, Middle, and Late Horizons be substituted for the Windmiller, Cosumnes, and Hotchkiss Cultures, respectively. In so doing, research developments could be incorporated into each culture and allow for a greater degree of variability in the archaeological record.

By and large, a transition from one phase to another was marked by changes in the archaeological record, such as change in subsistence practices, disposition of burials, social organization, and related artifact assemblages. However, by placing numerous cultures into a temporal horizon, the inherent cultural variation of a region is sometimes lost. In order to address this issue, Ragir (1972) suggested that the relatively uniform periods of Early, Middle, and Late Horizons be substituted for the Windmiller, Cosumnes, and Hotchkiss Cultures, respectively. In so doing, research developments could be incorporated into each culture and allow for a greater degree of variability in the archaeological record.

Of these three sequences, the Windmiller Pattern provides the earliest comprehensive view of the region, at around the height of the Archaic Period (~2,500 B.C. to ~2,000 B.C.) (Beardsley, 1954; Lillard, Heizer, and Fenenga, 1939; Ragir, 1972). The Windmiller culture reflected a people well adapted to riverine and marshland environments. Scholars have maintained that these Penutian speakers came from the Columbia Plateau or western Great Basin and settled in the bountiful Delta region where they gave rise to many of the Bay Area cultures that survived up to historic times, such as the Costanoan, Miwok, Yokut, and Wintun (Fagan, 1995; Elsasser, 1978).

The Windmiller economy was diffuse in breadth, a common trait among peoples during this time, whereby the people would make use of a wide range of resources so as to reduce risk in times of resource shortfall, such as those caused by climatic shifts. Also, the artifactual evidence of the Windmiller tradition suggests a wide range of specialized technology suited to the diffuse nature of their broad diet. These artifacts included large projectile points (spear or dart tips), baked-clay net sinkers, bone fish hooks and spears. In order to collect and process plant foods, mortars and

TABLE 3.5-1
CHARACTERISTICS OF CULTURAL PERIODS IN CALIFORNIA

1800 1500 500	Emergent Period	Upper	Clam disk bead money economy appears. Increased trade routes in terms of distance and volume of traded goods. Growth of local specializations with respect to production and exchange. Interpenetration of south and central exchange systems.
		Lower	Bow and arrow introduced, replace dart and atatl; south coast maritime adaptations evolve. Territorial boundaries well established. Evidence of distinctions in social status linked to wealth increasingly common. Regularized exchanges between groups continue with more material put into the network of exchanges.
AD BC 1000	Archaic Period	Upper	Growth of sociopolitical complexity; development of status distinctions based on wealth. Shell beads gain importance, possibly indicators of both exchange and status. Emergence of group-oriented religious organizations; possible origins of Kuksu religious system at end of period. Greater complexity of exchange systems; evidence of regular, sustained exchanges between groups; territorial boundaries not firmly established.
		Middle	Altithermal period may have ended by ca. 3000 B.C. reflecting present day conditions (Medithermal). Mortars and pestles and inferred acorn economy introduced. Hunting important. Diversification of economy; sedentism begins to develop, accompanied by population growth and expansion. Technological and environmental factors provide dominant themes. Changes in exchange or in social relations appear to have little impact.
3000		Lower	Altithermal begins ~5000 B.C. resulting in very hot and dry conditions; Ancient lakes dry up as a result of climatic changes; miling stones found in abundance; plant food emphasis, little hunting. Most artifacts manufactured of local materials; exchange similar to previous period. Little emphasis on wealth. Social unit remains the extended family.
6000	Paleo-Indian Period	Upper	Climate is Anathermal by ~7000 B.C. resulting in warm and semi-arid conditions. First demonstrated entry and spread of humans into California; lakeside sites with a probable but not clearly demonstrated hunting emphasis. No evidence for a developed milling technology although cultures with such technology may exist in state at this time depth. Exchange probably ad hoc on on-to-one basis. Social unit (the extended family) not heavily dependent on exchange; resources acquired by changing habitat.
8000 11500		Lower	Pre-Archaic populations were small and their subsistence included big game hunting of now extinct mammoth and mastodon. Research indicates that the Pre-Archaic economies were based on a wide-ranging hunting and gathering strategy, dependent to a large extent on local lake-marsh or lacustrine habitats.

Source: Fredrickson, 1974.

milling slabs are predominant during this time period, as well as charmstones and abalone shell (*Haliotis*) and olive snail (*Olivella*) ornaments and beads (Beardsley, 1948; Heizer, 1949; Heizer and Fenenga, 1939; Lillard et al., 1939; Ragir, 1972; Schulz, 1970).

Upper Archaic Period

The subsequent Berkeley Pattern or Cosumnes Culture ("Middle Horizon") (~2,000 B.C. to A.D. 300) was representative of the Emergent Period in California prehistory and protohistory (2,000 B.C. to A.D. 1500), and reflected a change in socioeconomic complexity and settlement patterns. Many of the settlements of this period, given their size and intensity of use, demonstrated that the populations were denser and more sedentary, yet continued to exploit a diverse resource base, from woodland to grassland and marshland, to bayshore resources throughout the San Francisco Bay Area (Bickel, 1978; King, 1974). Moreover, the Pacific Period was indicative of increasing sociopolitical complexity and the radiation of peoples into new ecological niches (Chartkoff & Chartkoff, 1984).

Two distinct traditions in the Delta region emerged during the Pacific Period. First, in the Early Pacific, the Cosumnes Tradition developed out of the Windmiller of the Late Archaic. As defined by Heizer (1964), the Cosumnes Tradition was marked by more milling tools and more specialized spears and lithics, along with a greater reliance on trade. Out of the Cosumnes Tradition came the Hotchkiss Tradition (or "Late Horizon") by the Late Pacific, or about 500 A.D., also defined by Lillard, Heizer, and Fenenga (1939). The Hotchkiss also corresponds to the Augustine Pattern (Fredrickson, 1973). The peoples of the Hotchkiss Tradition, who began exploiting fish more intensively and exhibited a growing population, were likely flourishing in the Stockton and Delta region up to the time of contact with Europeans.

Many of the above early investigations into Central Valley prehistory have been conducted in San Joaquin County. Indeed, much of the literature has supported the notion that Central Valley peoples maintained large populations along the banks of major waterways, wetlands, and streams. Although many sites are more obtrusive, such as shell mounds, much of the archaeological record for the region has likely been buried beneath the vast alluvial deposits by erosion and depositional processes indicative of the valley, especially over the last 9,000 years. Consequently, archaeological materials can be revealed unexpectedly during excavation throughout the Central Valley.

Historical Context

Europeans performed initial exploration of northern California beginning in the late 1500's. An era commonly referred to as the Hispanic Period (1769–1822) followed. This period was marked most notably by the missionization of the indigenous population and the development of presidios and civilian ranchos and pueblos throughout California. By 1822, the Mexican government gained control of California and began to wield more power over the affairs of California and its economic, use which led to a greater degree of secularization of the missions and ranchos. This, in turn, led to the purchase of various land grants, for the first time to non-Hispanics, namely John Sutter and Charles M. Weber, who established Sacramento and Stockton, respectively.

With the advent of the American Period (1846-present), an increased population engendered greater interest in the agricultural potential of the Valley. This fact was quickly recognized and resulted in the intensive alteration of the area in order to shape its suitability for cultivation. Marshes and lakes were drained, and elaborate irrigation systems were established. Today, the valley floor for the most part bears little resemblance to its natural condition; the oak groves are gone and the lakes are dry. The vast marshes, once the refuge for enormous flocks of waterfowl, are no longer exist. The grazing fields of the elk and antelope have become cultivated fields, producing a wide array of crops. The native faunal community, with the exception of burrowing mammals, has been replaced by domestic livestock.

METHODS

A records search of all pertinent survey and site data was conducted at the Central California Information Center at California State University, Stanislaus (CCIC # 5034N) on October 7, 2003. The records were accessed by utilizing the Hatch and Crows Landing USGS 7.5-minute quadrangle maps in Stanislaus County. In an effort to establish a general impression of the area archaeologically, the review followed the pipeline alignment along with a ¼ mile Study Area boundary. Subsequent changes to the proposed alignment have now placed the pipeline along the Harding Drain (approximately one mile north of the previously analyzed alignment at Bradbury Road). Consequently, the records search information, conducted for the Turlock Water Reclamation Project (CCIC # 4781) was consulted, which includes the section of the Harding Drain relevant to the proposed project. In addition, the environmental documentation for the Turlock Irrigation District Westside Transmission Line Project also covered this area of the Harding Drain and was consulted.

Previous surveys and studies and archaeological site records were accessed as they pertained to the Study Area. Records were also accessed and reviewed in the *Directory of Properties in the Historic Property Data File for Stanislaus County* for information on sites of recognized historical significance within the *National Register of Historic Places*, the *California Register of Historic Resources*, the *California Inventory of Historic Resources* (1976), the *California Historical Landmarks* (1996), and the *California Points of Historical Interest* (1992). In addition, the CALTRANS State and Local Bridge Survey (1986) was consulted, along with the Survey of Surveys (1989), GLO (General Land Office) Plats, and other pertinent historic data available at the CCIC for the county.

This assessment was further based on a field reconnaissance of the pipeline alignment. The surveys purpose was to establish a general impression of the area's historic properties and check for the existence of properties that had been previously identified in the pre-field literature search, as well as a field inspection for possible constituents of cultural sites.

REGULATORY FRAMEWORK

STATE

CEQA requires that lead agencies determine whether projects may have a significant effect on archaeological and historical resources. This determination applies to those resources which meet significance criteria qualifying them as "unique," "important," listed on the California Register of Historical Resources (CRHR), or eligible for listing on the CRHR. If the agency determines that a project may have a significant effect on a significant resource, the project is determined to have a significant effect on the environment, and these effects must be addressed. If a cultural resource is found not to be significant under the qualifying criteria, it need not be considered further in the planning process.

CEQA emphasizes avoidance of archaeological and historical resources as the preferred means of reducing potential significant effects. If avoidance is not feasible, an excavation program or some other form of mitigation must be developed to mitigate the impacts.

Archival Findings

The records search revealed that no previously recorded historic or prehistoric resources occur within the Project Area. One linear investigation that covers the entire project area was conducted by Nave (1999), which was negative for archaeological resources. Two additional surveys were conducted within a quarter-mile of the alignment (Chavez, 1976; Napton, 1991). Both were negative for surface evidence of archaeological resources or structural evidence of human occupation.

Survey Findings

Field survey of the proposed alignment did not reveal any potentially historical properties that could be adversely affected by the Proposed Project, nor did it yield any evidence of prehistoric artifacts, middens, or other features. The survey consisted of solo transects along the proposed alignment and an inspection of the outfall location. The Harding Drain Road alignment was not surveyed due to the existence of recent and adequate archaeological survey coverage (Nave, 1999). The visibility of the native surface was constrained due to the roadway development; as a result, the utility of the surface survey was highly impaired.

Because the alignment would follow existing rights-of-way, no structures would be affected by the construction; also, because the pipeline would be underground, no indirect impacts to the setting of any historically significant resource is anticipated. Similarly on this basis, the Harding Drain, ca. 1848, potentially an historic resource in and of itself, would not be affected by the proposed project.

3.5.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

According to the *CEQA Guidelines*, Appendix G, a project would have significant adverse impacts to cultural resources if the project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries.

Section 15064.5 provides that, in general, a resource not listed on state or local registers of historical resources shall be considered by the Lead Agency to be historically significant if the resource meets the criteria for listing on the California Register of Historical resources. This section also provides standards for determining what constitutes a "substantial adverse change" that must be considered a significant impact on archaeological or historic resources.

According to the CEQA Guidelines (Section 15064.5(a)(3)), generally a resource shall be considered "historically significant" if the resource meets the criteria for listing on the California Register of Historic Resources (Public Resources Code SS5024.1 Title CCR, Section 4852). When a project will impact an archeological site, it needs to be determined whether the site is an historical resource, which is defined as any site which:

(A) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and

(B) Meets any of the following criteria:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

In order to adequately address the level of potential impacts, and thereby design appropriate mitigation measures, the significance and nature of the cultural resources must be determined.

The following are steps typically taken to assess and mitigate potential impacts to cultural resources for the purposes of CEQA:

- Identify both previously recorded cultural resources and those not previously recorded through archival research and field reconnaissance.
- Evaluate the significance of cultural resources using CEQA guidelines.
- Identify the significance of impacts under CEQA of the proposed project within the APE.
- Develop and implement mitigation measures designed to avoid, minimize, rectify, reduce, or eliminate the effects of the project on significant cultural resources.

IMPACTS AND MITIGATIONS

Impact

3.5.1 Implementation of the proposed pipeline may affect unknown, potentially significant prehistoric and historic resources. (Potentially Significant)

Activities associated with construction of the Proposed Project could result in a significant impact to cultural resources. Cultural resources, whether prehistoric or historic, are physical manifestations of cultural activity. As such, they constitute an important non-renewable resource, which has the potential of increasing our understanding of older or extinct cultures.

Prehistoric Resources

Archaeological sites usually consist of both surface and subsurface components, with evidence beneath the surface often much more extensive than that visible above. The Project Area is mostly built environment; therefore, the possibility of finding surface indicators of prehistoric sites is probably low, while the likelihood of the existence of subsurface deposits of cultural material is still high, especially at depths below 100 cm. Although the Project Area was formerly a highly sensitive area for prehistoric occupation, there remains a possibility that previously unknown significant deposits may be encountered during development of currently open areas.

As both continued growth and redevelopment occur within the Project Area, the potential for destruction of archaeological resources would be increased. Excavation, trenching for foundations, pipe and cable installation, landscaping, and other earth disturbing activities associated with development could result in adverse impacts to archaeological resources.

The important archaeological sites excavated along the San Joaquin River could still yield important information regarding the prehistory of the Delta region. Along any watercourse or drainage unsurveyed for archaeological sites, the potential for impacts exists. Prehistoric occupation sites were typically located near watercourses. Both seasonal and permanent stream courses are sensitive, as there are areas where Native American groups would establish settlements or seasonal sites.

Historic Resources

Continued growth within could result in the destruction of historic buildings and other structures, which provide intergenerational linkages, and serve as unique reminders of our social, economic, and political history. A historical resources is defined as a building, structure, object, prehistoric or historic archaeological site, or district possessing physical evidence of human activities over 45 years old (CCIC, 2001). The importance of these resources is determined by an assessment of their architectural values and design, and significance as examples of their type and style. When preserved and protected, historic resources become an integral part of community character.

Mitigation Measures

3.5.1 If any historic or prehistoric find is determined to be significant by a qualified archaeologist, representatives of the City and the archaeologist and/or paleontologist would meet to determine an appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards in accordance with CEQA Guidelines Section 15064.5 (f).

Significance After Mitigation

Less-than-significant.

Impact

3.5.2 The implementation of the proposed project may adversely affect previously undocumented paleontological resources. (Potentially Significant)

The project site contains recent alluvium of stream channel, stream overflow, and alluvial fan deposits. The sediments are Pliocene and Quaternary marine and non-marine sedimentary rock sources. Given the relatively young geomorphic characteristics of this area, the probability of encountering paleontological resources is substantially reduced.

This notwithstanding, significant fossil discoveries can be made even in areas designated as having low potential, and may result from the excavation activities related to the proposed project. This impact would be reduced to a less-than-significant level with the incorporation of the following mitigation measure.

Mitigation Measure

3.5.2 Implement Mitigation Measure 3.5.1.

Significance After Mitigation

Less-than-significant.

Impact

3.5.3 The implementation of the proposed project may adversely impact human burials or osteological remains. (Potentially Significant)

Impacts to human burials or osteological remains is not expected to result from the project activities. However, the subsurface excavation required for construction of the Proposed alignment could potentially disturb or destroy human remains from both prehistoric and historic time periods, including those interred outside of formal cemeteries. This is considered a potentially significant impact that would be reduced to a less-than-significant level by implementation of the following mitigation.

Mitigation Measure

3.5.3 In the event of the discovery of human remains, CEQA Guidelines 15064.5 (e)(1) shall be followed, which is as follows:

(1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

(A) The Coroner of the county in which the remains are discovered must be contacted to verify that the remains are human, that no investigation of the cause of death is required, and

(B) If the coroner determines the remains to be Native American:

1. **The coroner shall contact the Native American Heritage Commission within 24 hours.**

2. **The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American.**

3. **The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.**

Significance After Mitigation

Less-than-Significant.

3.6 AIR QUALITY

This section provides an overview of existing air quality conditions within the project area, associated regulatory framework, and an analysis of potential air quality impacts that could result from implementation of the Proposed Project.

3.6.1 SETTING

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. The primary factors that determine local air quality are the locations of air pollutant sources and the amounts of air contaminants emitted. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

CLIMATE AND METEOROLOGY

The project area lies within the San Joaquin Valley Air Basin (SJVAB), a basically flat area bordered on the east by the Sierra Nevada range; on the west by the Coast Ranges; and to the south by the Tehachapi mountains. The region's topographic features act to restrict air movement through and out of the basin. Airflow in the SJVAB is primarily influenced by marine air that enters through the Carquinez Strait where the San Joaquin-Sacramento Delta empties into the San Francisco Bay (SJVUAPCD, 1998a). Wind speed and direction play an important role in air pollutant dispersion and transport. As a consequence, the SJVAB is highly susceptible to pollutant accumulation over time (SJVUAPCD, 1998a). Frequent transport of pollutants into the SJVAB from upwind sources also contributes to poor air quality.

The San Joaquin Valley is characterized by an inland Mediterranean climate that is typified by warm, dry summers and cooler winters. Summer high temperatures often exceed 100 degrees Fahrenheit, averaging from the low 90s in the northern part of the Valley to the high 90s in the south (NWS, 1999). The daily summer temperature variation can be as high as 30 degrees Fahrenheit. Winters are for the most part mild and humid. Average high temperatures during the winter are in the 50s, while the average daily low temperature is about 45ºF (NWS, 1999).

During summer periods airflow in the project area is primarily influenced by marine air that enters through the Carquinez Straits. Winds usually originate out of the north end of the San Joaquin Valley (Valley) and flow in a south-southeasterly direction through the Valley, through the Tehachapi pass and into the neighboring Southeast Desert Air Basin (CARB, 1989). Summer transport of pollutants into the project area from upwind sources sometimes contributes to poor ozone air quality. Conversely, emissions in the project area may impact downwind communities. Winter air quality is influenced by regional storms carrying moisture from the Pacific Ocean with periods of calm winds between storms. During winter months, winds occasionally originate from the south end of the Valley and flow in a north-northwesterly direction. Also, during winter months, the Valley experiences light, variable winds, less than 10 mph (CARB, 1989). Low wind

speeds, combined with low inversion heights, create a winter climate conducive to high concentrations of certain air pollutants (e.g., carbon monoxide). When temperature inversions are formed, the vertical dispersion of air pollutants is inhibited. As a rule of thumb, air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Air above and below an inversion does not mix because of differences in air density thereby restricting air pollutant dispersal.

REGULATORY FRAMEWORK

Regulation of air pollution is achieved through both national and state ambient air quality standards and emissions limits for individual sources of air pollutants. An "ambient air quality standard" represents the level of air pollutant in the outdoor (ambient) air necessary to protect public health. The federal Clean Air Act (CCA) requires the EPA to identify National Ambient Air Quality Standards (national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants (referred to as State Ambient Air Quality Standards or State standards). **Table 3.6-1** presents both sets of ambient air quality standards (i.e., national and state) and provides a brief discussion of the related heath effects and principal sources for each pollutant.

Under amendments to the federal Clean Air Act, U.S. EPA has classified air basins or portions thereof, as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. Under the federal Clean Air Act Amendments of 1990, ozone nonattainment areas are further classified as marginal, moderate, serious, severe, or extreme, depending upon the severity of peak ozone concentrations in the area. In 1988, the State Legislature passed the California Clean Air Act, which is patterned after the federal Clean Air Act to the extent that areas are required to be designated as "attainment" or "nonattainment;" however, area designations that have been made under the California Clean Air Act correspond to the state standards, rather than the national standards. Thus, areas in California have two sets of attainment / nonattainment designations: one set with respect to the national standards and another set with respect to the state standards.

The federal Clean Air Act also requires nonattainment areas to prepare air quality plans that include strategies for achieving attainment. Air quality plans developed to meet federal requirements are referred to as State Implementation Plans (SIPs). The California Clean Air Act also requires plans for nonattainment areas with respect to the state standards. Thus, just as areas in California have two sets of designations, many also have two sets of air quality plans: one to meet federal requirements relative to the national standards and another to meet state requirements relative to the state standards.

TABLE 3.6-1
FEDERAL AND STATE CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	0.12 ppm	Irritation and possibly permanent lung damage.	Motor vehicles.
	8 hours	---	0.08 ppm*		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Deprives body of oxygen in the blood. Causes headaches and worsens respiratory problems.	Primarily gasoline-powered motor vehicles and internal combustion engines.
	8 hours	9 ppm	9.0 ppm		
Nitrogen Dioxide (NO_2)	Annual Average	---	0.05 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum-refining, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	---		
Sulfur Dioxide (SO_2)	Annual Average	---	0.03 ppm	Irritates and may permanently injure respiratory tract and lungs. Can damage plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	---		
	24 hours	0.04 ppm	0.14 ppm		
Suspended Particulate Matter (PM10 PM2.5)	Annual Geometric Mean	30 $\mu g/m^3$ (PM10)	65 $\mu g/m^3$ (PM2.5)	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 $\mu g/m^3$ (PM10) 12 $\mu g/m^3$ (PM2.5)	50 $\mu g/m^3$ (PM10)		
	24 hours	50 $\mu g/m^3$ (PM10)	150 $\mu g/m^3$ (PM10) 15 $\mu g/m^3$ (PM2.5)		
Lead	Monthly	1.5 $\mu g/m^3$	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 $\mu g/m^3$		
Sulfates (SO_4)	24 hours	25 $\mu g/m^3$	---	Similar to sulfur dioxide	Industrial processes refineries.
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 $\mu g/m^3$)	---	Very pungent odor similar to rotten eggs.	Annoying and irritating – high concentrations fatal.

NOTE: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

Source: California Air Resources Board, *Ambient Air Quality Standards*, January 25, 1999.

REGULATORY AGENCIES

The EPA is responsible for implementing the myriad of programs established under the federal Clean Air Act, such as establishing and reviewing the national ambient air quality standards and judging the adequacy of SIPs, but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented. The California Air Resources Board (CARB), the State air quality management agency, is responsible for establishing and reviewing the State ambient air quality standards, compiling the California SIP and securing approval of that plan from U.S. EPA. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level. The county or regional air quality management districts are primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within their jurisdiction and for preparing the air quality plans that are required under the federal and State Clean Air Acts. The SJVAPCD, formerly the San Joaquin Valley Unified Air Pollution Control District, is the regional air quality control district in the project area.

AIR QUALITY PLANS, POLICIES AND REGULATIONS

Plans and Policies

The project area is located in southern Stanislaus County, a sub-region within the SJVAB. The SJVAB is currently designated as severe nonattainment for national and State ozone and serious nonattainment for respirable particulate matter (PM10) standards (CARB, 2000). The urbanized areas of Bakersfield, Fresno, Modesto, and Stockton were recently redesignated as an attainment zone for the federal carbon monoxide standard. The SJVAB is in an attainment or unclassified zone for the other ambient air quality standards.

As noted above, federal and State air quality laws require regions designated as nonattainment to prepare plans that either demonstrate how the region will attain the standard or that demonstrate reasonable improvements in air quality conditions. A series of air quality plans have been developed and adopted for the SJVAB. The following describes the most current federal and State air quality plans as they apply to the project area:

- *The Federal Ozone Attainment Demonstration Plan* (adopted November 14, 1994, and amended 2001). This plan establishes the regulatory framework needed to bring the SJVAB into compliance with the national standards for ozone. This plan also satisfies the triennial review requirement for State Ambient Air Quality Standards under the California Clean Air Act.

- *California Clean Air Act Triennial Progress Report and Plan Revision 1997–1999.* This plan identifies the SJVAB as both a source and receptor of transported ozone and concludes that attainment of the State ozone standard will not occur until upwind areas, such as the San Francisco Bay Area and the Sacramento Valley Air Basins, substantially reduce their emissions of ozone precursors.

- *2000 Ozone Rate of Progress Report* (Adopted April 20, 2000 and amended April 27, 2000). To demonstrate that milestones for attainment are being achieved, EPA required districts to prepare rate of progress plans. Under this requirement, the SJVUAPCD submitted a 1993 Rate of Progress Plan 1 (1993 ROP) covering the six years from 1991 through 1996, and a Post-1996 Rate of Progress Plan (Post-1996 ROP) 2 that covers 1997–1999. The purpose of this report is to demonstrate that the target level of emissions or milestones for 1997–1999 (9 percent) and for 1990–1999 (24 percent) have been met.

- *California Clean Air Act Annual Progress Report 2000* (adopted February 27, 2001). Section 40924 (a) of the California Health and Safety Code requires each air district to submit an annual report to CARB that summarizes its progress in meeting the schedules for developing, adopting and implementing the air pollution control measures in the Air Quality Attainment Plan (AQAP). Specifically, ARB's 1993 Guidance for Annual and Triennial Progress Reports Under the California Clean Air Act requires that the Annual Report include the following information:

  – The status of stationary source control measures for the most recent calendar year;

  – The status of Transportation Control Measures (TCMs), focusing on activity in TCM implementation through such avenues as federal, state, and local transportation sources; district and other agency programs/interagency agreements for TCM implementation and district rules to backstop such actions;

  – Similar information for area source and indirect source control programs;

  – Table summarizing, for all measures, the planned adoption and implementation years(s) versus the actual adoption and implementation years; and

  – Where measures are pending, more detail such as planned workshop activity and the projected adoption month/year.

- *1997 PM10 Attainment Demonstration Plan and 1997–1999 PM10 Progress Report*. This plan establishes the regulatory framework in order to bring the SJVAB into compliance with the national standards for PM10 by the end of 2006, as prescribed by the EPA (SJVUAPCD, 1998a).

- *1992 Federal Attainment Plan for Carbon Monoxide*. This plan establishes the regulatory framework needed to bring the SJVAB into compliance with the national standards for CO. This plan demonstrates that CO attainment has already been achieved (SJVUAPCD, 2001).

Rules and Regulations

SJVAPCD is responsible for preparing the air quality plans (or portions thereof) for its jurisdiction, and regulating statuary source emissions. SJVAPCD's primary means of implementing the above air quality plans is by adopting rules and regulations. Stationary sources within the jurisdiction are regulated by the District's permit authority over such sources and through its review and planning activities. For example, the SJVAPCD adopted its Regulation VIII-Fugitive Dust Control, Rule 8010, on October 21, 1993. This regulation consists of a series of emission reduction rules intended to implement the *PM10 Attainment Demonstration Plan*. The *PM10 Attainment Demonstration Plan* emphasizes reducing fugitive dust as a means of

achieving attainment of the federal standards for PM10. The rule specifically addresses the following activities:

- construction, demolition, excavation, extraction;
- handling and storage of bulk materials;
- landfill disposal sites;
- paved and unpaved roads; and
- vehicle and/or equipment parking, shipping receiving, transfer, fueling, and service areas.

LOCAL PLANS AND POLICIES

The project area includes unincorporated portions of Stanislaus County. The County's General Plan identifies policies and/or objectives related to emission reduction strategies for mobile, stationary and area sources. The General Plan also provides a discussion on land use policies that can assist in lowering the number of trips and vehicle miles traveled. Policies and/or objectives related to the Proposed Project are outlined below for the reader's benefit.

Stanislaus County

The Conservation Element of the Stanislaus County General Plan contains goals and policies that encourage emission reduction strategies from mobile, stationary and area sources that comply with state and federal standards. These goals and policies are provided below:

GOAL 6: Improve air quality.

POLICY 18: The County will promote effective communication, cooperation and coordination among agencies involved in developing and operating local and regional air quality programs.

IMPLEMENTATION MEASURES

1. Refer discretionary projects under CEQA review to the SJVAPCD, neighboring jurisdictions and other affected agencies for review and comment. Responsible Department: Planning Department.

2. Work with other agencies in the San Joaquin Valley to establish coordinated air quality programs and implementation measures. Responsible Departments: Planning Department, Planning Commission, Board of Supervisors.

POLICY 19: The County will strive to accurately determine and fairly mitigate the local and regional air quality impacts of Proposed Projects.

IMPLEMENTATION MEASURES

1. Require all development proposals, where appropriate, to include reasonable air quality mitigation measures. Responsible Departments: Planning Department, Planning Commission, Board of Supervisors.

2. Minimize case-by-case analysis of air quality impacts through the use of standard criteria for determining significant environmental effects, a uniform method of

TABLE 3.6-2
SUMMARY OF MONITORING DATA
FOR THE PROJECT AREA, 1997–2001

	STATE STANDARD	NATIONAL STANDARD	POLLUTANT CONCENTRATION BY YEAR [a]				
Pollutant			**1997**	**1998**	**1999**	**2000**	**2001**
Ozone							
Highest 1-hour average, ppm [b]	0.09	0.12	**0.120**	**0.153**	**0.111**	**0.131**	**0.114**
Days over State Standard			15	35	12	15	9
Days over National Standard			0	4	0	1	0
Highest 8-hour average, ppm	NA	0.08	**0.100**	**0.125**	**0.099**	**0.107**	**0.100**
Days over National Standard			8	29	9	10	7
Carbon Monoxide							
Highest 8-hour average, ppm	9.0	9	3.93	3.19	3.67	3.53	3.14
Days over Standard			0	0	0	0	0
Respirable Particulate Matter (PM10)							
Highest 24-hour average, $\mu g/m^3$ [b]	50	150	**111**	**108**	**157**	**104**	**148**
Number of samples [c]			9	8	11	10	10
Calculated Days > State Standard			50	43	63	57	60
Calculated Days > Ntl. Standard			0	0	1	0	0
Annual average, $\mu g/m^3$	30	50	**33**	25	**32**	29	**33**
Nitrogen Dioxide							
Highest 1-hour average, ppm	0.25	NA	0.083	0.075	0.096	0.068	0.071
Days over State Standard			0	0	0	0	0

NOTE: **Bold** values are in excess of state or federal standard. NA = Not Applicable or Not Available.

a Data was collected at the South Minaret Street monitoring station unless otherwise noted.
b ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
c PM10 is measured for 24 hours every sixth day of the year. The term, *number of samples* refers to the number of 24-hour-average PM10 samples collected in a given year at the South Minaret Street monitoring station.

SOURCE: California Air Resources Board, *Summary of Air Quality Data, Gaseous and Particulate Pollutants*, www.arb.ca.gov/adam, 2001.

calculating project emissions, and standard mitigation methods to reduce air quality impacts. Responsible Departments: Planning Department, Planning Commission, Board of Supervisors.

EXISTING AIR QUALITY CONDITIONS

The SJVAPCD's regional air quality monitoring network provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and

meteorological factors. **Table 3.6-2** presents a five-year summary of air pollutant data collected at the South Minaret Street monitoring station in the City of Turlock. The South Minaret Street station measures concentrations of all criteria air pollutants. Pollutant concentrations measured at this station is representative of background air pollutant concentrations in the project area. In **Table 3.6-2**, air pollutant concentrations are compared with state and national ambient air quality standards.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is formed by the incomplete combustion of fuels and is emitted directly into the air. Ambient CO concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. CO concentrations are also influenced by wind speed and atmospheric mixing. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area to some distance from vehicular sources. CO binds with hemoglobin, the oxygen-carrying protein in blood, and reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, can impair mental abilities, and can cause death (CARB, 2001).

Exceedances of CO standards are most likely to occur in winter months, when relatively low inversion levels trap pollutants near the ground and concentrate the CO. **Table 3.6-2** shows that background CO concentrations in the vicinity of the 14th Street monitoring station do not approach the state standards even during stagnant wintertime conditions. However, localized CO concentrations at congested intersections and freeway segments might be expected to be higher than the monitoring data in **Table 3.6-2**, thereby creating local hot spots. The primary source of CO in the San Joaquin Valley is on-road motor vehicles, which roughly account for approximately 68 percent of total CO emissions (CARB, 1999). Other sources include fireplaces, other mobile sources (farm vehicles, trains, ships) and waste burning (CARB, 2001).

Oxides of Nitrogen (NO_X)

Fuel combustion using normal air as the oxygen source usually creates Oxides of Nitrogen – typically NO. While NO is mildly toxic by itself, Nitrogen dioxide (NO_2) is about 200 times more potent (Nitrogen dioxide is the whiskey brown colored gas readily visible during periods of heavy air pollution.). NO is an ozone precursor, but ozone production also converts some NO to NO_2. Generally, higher temperatures create higher NO levels. Smog formation also creates some N_2O_5, Nitrous Oxide (N_20), and peracylacetylnitrates (PAN). Because of the complex chemistry involved, the criteria pollutant measured is NO_2. Elevated Oxides of Nitrogen concentrations are associated with increased acute and chronic respiratory disease. Motor vehicles and power plants are major sources of Oxides of Nitrogen. According to CARB area designation maps, the SJVAB is classified as in attainment for NO_2.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are less pervasive in the urban atmosphere than the criteria air pollutants. However, they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are many different types of TACs, with varying degrees of toxicity. TACs sources include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust. In 1983, the State of California established a process for identifying TACs. The current list of TACs includes approximately 200 compounds, including particulate emissions from diesel-fueled engines, which was added in 1998.

Stationary Source Controls

The regulatory approach differs between stationary sources and mobile sources of TACs. The SJVAPCD limits emissions of and public exposure to TACs through a number of programs. The potential for new and modified stationary sources to emit TACs is reviewed by the SJVAPCD's Permit Services Division, which implements the SJVAPCD's Risk Management Policy. Toxic air contaminant emissions from stationary sources are limited by:

- SJVAPCD adoption and enforcement of rules aimed at specific types of sources known to emit high levels of TACs;
- Implementation of the Air Toxics Hot Spots Program; and
- Implementation of the Federal Title III Toxics program.

Mobile Source Controls

The approach to regulation of TACs from mobile sources has been through establishment (by the EPA and CARB) of emissions standards for motor vehicles (imposed on vehicle manufacturers) and through specifications for gasoline and diesel fuel sold in California (imposed on fuel refineries and retailers), rather than through air quality permits or regulations on how motor vehicles are used by the general public.

SENSITIVE RECEPTORS

Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because infants and children, the elderly, and people with health afflictions, especially respiratory ailments, are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Large tracts of agricultural land with scattered rural residential uses characterize a majority of the project alignment. In some instances, the project alignment will be constructed within 50 feet of an existing residence. Additionally, the proposed pump station would be constructed within roughly 200 feet of several residences situated to the north of the intersection of Harding and Prairie Flower Road. These residential areas tend to be rural in nature with large

lot sizes. These areas would be expected to be more sensitive to poor air quality originating from construction equipment.

3.6.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Based on criteria derived from the CEQA Guidelines and the professional judgment of City staff and its consultants, the Proposed Project would be considered to have a significant air quality effect if it would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Conflict with or obstruct implementation of the applicable air quality plan(s); or
- Create objectionable odors affecting a substantial number of people.

Additionally, the SJVAPCD has established thresholds of significance for construction impacts, project operations and cumulative impacts. For construction impacts, the pollutant of greatest concern to the District is PM10.[1] The SJVAPCD recommends that significance be based on a consideration of the control measures to be implemented during project construction (SJVUAPCD, 1998b). Compliance with Regulation VIII, Rule 8010, and implementation of appropriate mitigation measures to control PM10 emissions are considered to be sufficient to render a project's construction-related impacts less than significant. The SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts* (*GAMAQI*) contains a list of feasible control measures for construction-related PM10 emissions.

The SJVAPCD's *GAMAQI* also includes significance criteria for evaluating operational-phase emissions from direct and indirect sources associated with a project. Indirect sources include motor vehicle traffic associated with the project and do not include stationary sources covered under permit with the SJVAPCD. For this analysis, the project would be considered to have a significant effect on the environment if it would exceed the following thresholds:

- Cause a net increase in pollutant emissions of ROG or NO_x exceeding 10 tons per year.

[1] Construction equipment emits carbon monoxide and ozone precursors. The SJVAPCD has determined that these emissions would cause a significant air quality impact only in the case of a very large or very intense construction project (SJVUAPCD, 1998b).

- Cause a violation of State CO concentration standards. The level of significance of CO emissions from mobiles sources is determined by modeling the ambient concentration under project conditions and comparing the resultant 1- and 8-hour concentrations to the respective State CO standards of 20.0 and 9.0 parts per million.

- Cause visible dust emissions due to on-site operations and thereby violate SJVAPCD Regulation VIII.[2]

The operation of any project with the potential to expose sensitive receptors to substantial levels of TACs would also be deemed to have a potentially significant impact. More specifically, proposed development projects under the project that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact if:

- Probability of contracting cancer for the Maximally Exposed Individual exceeds 10 in one million.

- Ground-level concentrations of non-carcinogenic TACs would result in a Hazard Index greater than 1.

These standards are typically applied to the results of a health risk assessment or detailed air dispersion modeling effort using the CARB's Industrial Source Complex Short-Term (ISC3ST) model.

Lastly, any Proposed Project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Impacts of local pollutants (e.g., CO and TACs) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects in the area will exceed air quality standards.

APPROACH TO ANALYSIS

The following air quality analysis identifies the types of emissions sources that would be associated with the project and evaluates their significance taking into account such factors as the types and amounts of the different pollutants that would be emitted, the duration of the impact, and the applicable significance criteria. Emissions estimates have been made taking into account such factors as fuel types and expected usage rates for different pieces of construction equipment.

Essentially all of the air quality impacts due to the project would be short-term in nature and would be associated with the construction phase of the project. Project construction would involve installation of an underground wastewater pipeline and outfall. The project would employ open trenching as the primary method of installation and directional boring in limited instances. Over the short-term, activities related to installing the new pipeline, outfall, pump station and associated facilities would result in emissions of ozone precursors and particulate

[2] Visible dust is defined by the SJVAPCD as "visible dust of such opacity as to obscure an observer's view to a degree equal to or greater than an opacity of 40 percent, for a period or periods aggregating more than three minutes in any one hour."

matter (PM10 and PM2.5) from operation of construction equipment and construction worker commute trips. Emissions of "fugitive" dust[3] (which includes PM10 and PM2.5 as well as larger-diameter particles) from earthmoving operations and vehicle travel over unpaved surfaces would also occur. On a regional level, equipment and vehicle emissions associated with installing each respective project component would contribute incrementally to atmospheric loading of pollutant compounds, or their precursors, that are involved in the formation of ozone, PM10, and PM2.5. On a local level, the fugitive dust emissions would contribute to local PM10 concentrations and may result in nuisance-type impacts from particulate settling, and in reduced local visibility. Once operational, the project would result in negligible emissions over the long-term, as the proposed pump station would be powered by electricity. Long-term emissions sources associated with the Proposed Project would include emissions associated with occasional vehicle trips associated with periodic maintenance and inspection activities.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact

3.6.1 Fugitive dust generated during future project construction activities could be substantial and would contribute to intermittent ambient respirable particulate matter concentrations that could contribute to the continued violation of State PM10 standards. The SJVAPCD requires that all construction activities implement fugitive dust control measure in accordance with Regulation VIII. With the implementation of these measures for project-specific activities, a less than significant impact is expected. (Less-than-Significant)

The air pollutants of primary concern during construction projects are generally PM10 and NOx (because NOx is an ozone precursor). Reactive organic gasses (ROG) are also ozone precursors generated by the use of gasoline-powered vehicles (and to a lesser extent diesel-fueled vehicles), however this type of construction project is likely to generate only minor amounts of ROG. Diesel fuel would generate primarily NOx emissions, but also ROG and PM10 in varying amounts depending largely on fuel oil grade and existing emission controls. Although PM10 is generally a concern during construction projects, this would be less a concern for laying pipe in an existing pavement. The SJVAPCD recommends that determining significance of construction impacts not be based not on quantification of emissions and comparison to thresholds, but upon inclusion of effective and comprehensive control measures for PM10 and compliance with Regulation VIII, Rule 8010. A quantitative emissions calculation was performed to support this conclusion. As the shown in **Table 3.6-3**, none of the projected construction-related emissions are considered significant. Calculations in support of the data provided in **Table 3.6-3** are provided in **Appendix G**.

For all construction activities, the implementation of all Regulation VIII fugitive dust control measures is required by law. Therefore, the City must require all of its

[3] Fugitive emissions are those released to the atmosphere through a means other than through a stack or tailpipe. Fugitive dust results from such occurrences as earthmoving activities, vehicle movement over paved or unpaved roads, and wind blowing over exposed surfaces.

TABLE 3.6-3
ESTIMATED UNMITIGATED CONSTRUCTION-PHASE EMISSIONS FOR TRENCHING AND BORING (POUNDS/DAY)

	Maximum Daily Construction Scenario [a, b]				Significance Criteria [c]	
Pollutant	**1 Crew Trenching (pounds / day)**	**1 Crew Boring (pounds / day)**	**Total Emissions 2 Crew Trenching + 1 Crew Boring (pounds / day)**	**Total Emissions 1 Crew Trenching + 2 Crew Boring (pounds / day)**	**Significance Threshold (pounds / day)**	**Significant? (Yes or No)**
Reactive Organic Gases (ROG)	3	5	11	12	82	No
Nitrogen Oxides (NOx)	26	16	67	59	82	No
Particulate Matter (PM10)	3	2	7	6	82	No

[a] Maximum daily construction scenario would involve no more than three construction crews (e.g., 1 or 2 trenching crews and 1 or 2 boring crews.)
[b] Calculations based on street trenching and boring 1-crew daily totals.
[c] As the SJVAPCD does not have thresholds of significance for construction emissions, significance criteria are from the Sacramento Metropolitan Air Quality Management District's Air Quality Thresholds of Significance.

Source: Environmental Science Associates, 2004

contractors to utilize all fugitive dust control measures outlined in Regulation VIII. Based on the size of the construction area and proximity to receptors, additional measures may be required as described in Air District rules. Implementation of the Regulation VIII fugitive dust control measures would reduce construction dust emissions associated with the project to a less than significant level based on the short-term exposure of any single sensitive receptor to residual fugitive dust emissions. These measures are outlined as follows:

- Water, chemical soil stabilizers/suppressants, or vegetative ground cover shall be used to control fugitive dust from all disturbed areas, including storage piles, which are not being actively used at the construction site.
- Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust from all unpaved roads on-site and all off-site unpaved access roads to the construction site.
- Applications of water or presoaking shall be performed to control fugitive dust from all land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities.
- The exterior surfaces of buildings to be demolished shall be wetted during demolition.
- Cover and wet all materials transported off-site *or* require all trucks to maintain at least six feet of freeboard from the top of the container.

- Remove accumulated mud or dirt from adjacent public streets at least once every 24 hours during construction periods. (The use of dry rotary brushes is expressly prohibited, except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is also expressly forbidden.)

- Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust after each addition of materials to or removal of materials from all storage piles.

- Limit the speed of all construction vehicles to 15 miles per hour on unpaved roads.

- Replant vegetation in disturbed areas as quickly as possible.

Construction equipment and construction-worker commute vehicles would also generate criteria air pollutant emissions. These emissions would be relatively minor and temporary. Criteria pollutant emissions of ROG and NO_x from these emissions sources would incrementally add to regional atmospheric loading of ozone precursors during the construction period. The SJVAPCD *GAMAQI* recognizes that construction equipment emit ozone precursors, but indicates that such emissions are not considered to be significant unless the project construction is very large or very intense. Construction of the various components under the project are expected to be limited in scope, and will not exceed this criterion.

Mitigation Measures

No mitigation is required beyond the implementation of measure identified in Regulation VIII, Rule 8010.

Impact

3.6.2 The long-term operation of the Proposed Project would not result in a substantial increase in criteria air pollutants and/or TACs. (Less-than-Significant)

The proposed pipeline would consist of a force main and associated pump station that would be powered by electricity. As indicated in Chapter 2.0, the pump station would consist of six 250 horsepower vertical turbine pumps with five pumps operating 24-hours a day, seven days a week and the sixth primarily serving as an alternative in case of a breakdown. Initially, however, the pump station would operate via three pumps with one serving as backup for an interim capacity of 24 mgd. From a regional power generation perspective, power usage associated with the Proposed Project would be minimal. As such the Proposed Project is not anticipated to require any new upgrades to existing power generation facilities or require the construction of new generating facilities.

Over the long-term operation of the Proposed Project, emissions of criteria air pollutants would be negligible and attributed to occasional motor vehicle trips associated with periodic maintenance and inspection activities. No net increase in TACs is expected, as no change in the operation of City's WQCF would occur. Therefore, the long-term operation of the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment nor would

it conflict with an applicable air quality attainment plan. Consequently, the residual impact is considered less-than-significant.

Mitigation Measure

No mitigation required.

Impact

3.6.3 The Proposed Project would not create objectionable odors affecting a substantial number of people. (Less-than-Significant)

Effluent proposed for discharge into the San Joaquin River will undergo tertiary treatment. Water that has undergone this level of treatment generally does not have any offensive odors associated with it. For this reason, impacts related to odor are considered less-than-significant.

Mitigation Measure

No mitigation is required.

3.7 NOISE

This section addresses future noise impacts resulting from the implementation of the Proposed Project. Noise regulations for each jurisdiction are identified and summarized as they relate to project-specific components of the project. This analysis assumes typical construction equipment noise levels to estimate corresponding noise levels at sensitive receptor locations and determines project significance based on local noise regulations and the CEQA Guidelines.

3.7.1 SETTING

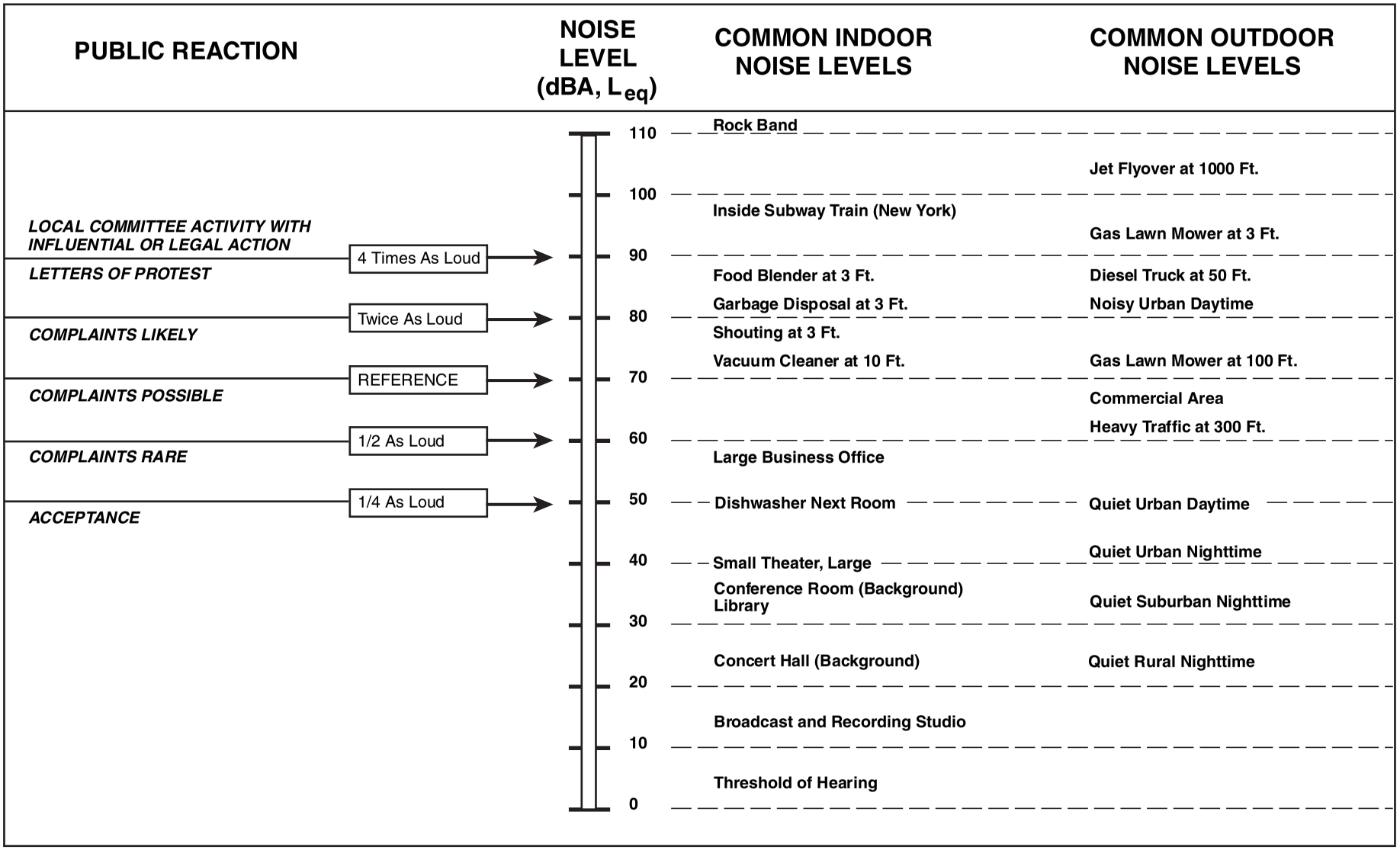
NOISE PRINCIPLES AND DESCRIPTORS

Noise Background

Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz) which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of each measured Hz and corresponding sound power level. The audible sound spectrum consists of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum (20 to 20,000 Hz). As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard method of frequency de-emphasis and is typically applied to community noise measurements. In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 3.7-1**. All of the noise levels reported herein are A-weighted unless otherwise stated.



SOURCE: Caltrans Transportation Laboratory Noise Manual, 1982.

Figure 3.7-1
Effect of Noise on People

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in **Figure 3.7-1** are representative of measured noise at a given instant in time, however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources such as aircraft flyovers, vehicle passbys, sirens, etc., which are readily identifiable to the individual. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

Leq: the equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The Leq is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

Lmax: the instantaneous maximum noise level for a specified period of time.

L10: the noise level that is equaled or exceeded 10 percent of the specified time period. The L10 is often considered the maximum noise level averaged over the specified time period.

L90: the noise level that is equaled or exceeded 90 percent of the specified time period. The L90 is often considered the background noise level averaged over the specified time period.

DNL: 24-hour day and night A-weighed noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises.) Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noise.[1]

CNEL: similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 5 dBA "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10 dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

[1] DNL is also commonly referred to as Ldn in many local general plans and zoning ordinances.

SEL: a receiver's cumulative noise exposure from a single noise event. Often used to calculate Leq and Ldn values.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- subjective effects of annoyance, nuisance, dissatisfaction;
- interference with activities such as speech, sleep, learning; and
- physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 1998):

- under controlled conditions in an acoustics laboratory, the trained, healthy human ear is able to discern changes in sound levels of 1 dBA;
- outside of such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA;
- a change in level of 5 dBA is a readily perceptible increase in noise level; and
- a 10 dBA change is recognized as twice as loud as the original source.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. Sound level is measured in decibels. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple linear fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 9 dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or

manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a "line" source), would typically attenuate at a lower rate, approximately 4 to 6 dBA per doubling distance.

NOISE REGULATIONS, PLANS, AND POLICIES

In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains fairly constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Noise regulations established by each branch of government are described below.

Federal Regulations

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State Regulations

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dBA. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of DNL 45 dBA in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local Regulations

Local regulation of noise involves implementation of General Plan policies and Noise Ordinance standards. Local General Plans identify general principles intended to guide and influence development plans, and Noise Ordinances set forth the specific standards and procedures for addressing particular noise sources and activities. General Plans recognize that different types of land uses have different sensitivities toward their noise environment; residential areas are generally considered to be the most sensitive type of land use to noise and industrial/commercial

areas are generally considered to be the least sensitive. Local noise ordinances typically set forth standards related to construction activities, nuisance-type noise sources, and industrial property-line noise levels. Noise regulations and standards that apply to the land uses within the unincorporated portions Stanislaus County are provided below for the reader's benefit.

Stanislaus County

Stanislaus County does not have a community noise ordinance, but regulates noise and noise land use incompatibility through implementation of its General Plan Noise Element (Stanislaus County, 1987). Policy Two of the Noise Element identifies stationary source noise goals with respect to residential noise sensitive land uses. Policy Two establishes a residential Ldn (or CNEL) of 60 dBA for stationary source impacted noise sensitive land uses. In addition, the Noise Element establishes noise level performance standards. These performance standards are summarized in **Table 3.7-1**.

TABLE 3.7-1
STANISLAUS COUNTY STATIONARY SOURCE NOISE PERFORMANCE STANDARDS (dBA)[a]

Noise Descriptor	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Cumulative 30 minutes in any one-hour time period	50	45
Cumulative 15 minutes in any one-hour time period	55	50
Cumulative 5 minutes in any one-hour time period	60	55
Cumulative 1 minutes in any one-hour time period	65	60
Maximum level, dBA	70	65
Hourly Leq, dBA	50	45

[a] As measured at the property line of the noise sensitive residential land use. Each cumulative noise standard shall be reduced by five (5) dBA for pure tone noises, noise consisting of speech or music, or for recurring impulsive noises.

SOURCE: Stanislaus County, 1987

EXISTING NOISE ENVIRONMENT AND SENSITIVE RECEPTORS

Existing Noise Environment

The existing noise environment in the project area is attributed to various stationary and mobile sources. These include noise originating from local vehicular and truck traffic and the operation of stationary (e.g., tallow factory) and mobile noise sources associated with local agricultural activities. Other, less prevalent, sources of noise that contribute to the existing noise environment in the project area site include landscaping activities (e.g., leaf blowing, lawn mowing, etc.) and regional roadway traffic between Prairie Flower Road and Carpenter Roads.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses. Sensitive receptors in the vicinity of the project alignment and pump station include several rural residences. Installation of the pipeline would occur almost entirely within County road and TID drainage and irrigation canal ROW. In some instances, the pipeline could be installed within 50 feet of an existing residence.

3.7.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

A project would normally result in a significant noise impact if it would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

According to the Stanislaus County Noise Element, a potentially significant impact would occur if noise generated by the Proposed Project in unincorporated areas exceeds 60 dBA DNL at the nearest residential location, per the performance standards outlined in **Table 3.7-1**.

METHODOLOGY

This evaluation of potential impacts to the existing noise environment due to the implementation of the Proposed Project focuses on construction-phase impacts. This is in part due to the large area to be affected by temporary increases in the rural noise environment along the pipeline alignment from construction equipment during pipe installation. Temporary increases in noise due to construction would have the potential to adversely affect sensitive land uses, such as residences, churches, etc., along route segments. In this instance, a qualitative, rather than quantitative, analysis for construction noise impacts is warranted due to the brief period during which construction noise would affect any given adjacent land use along the route.

In is acknowledged that, as part of the operational-phase of the project, the installation and use of noise-generating equipment such as the proposed pump station would be utilized. As such, the analysis following-term impacts focus on operational noise associated with the use of the pump station. Following construction, the Proposed Project would generate essentially no motor

vehicle traffic, except from periodic inspection and maintenance of project facilities during the long-term operation of the project.

IMPACT ANALYSIS

Impact

3.7.1 Construction associated with the implementation of the Proposed Project would temporarily and intermittently increase noise levels along the proposed pipeline alignment. The temporary increase in noise could adversely affect nearby sensitive receptor locations along the proposed alignment. Construction noise resulting from the use of heavy equipment along the proposed route is considered a potentially significant impact of the Proposed Project. (Potentially Significant)

As described in Section 3.3, Land Use and Agriculture, and summarized in the setting discussion above, there are several rural residences situated along the proposed pipeline corridor. As such, several rural residences would be within close proximity to noise-generating equipment during construction of the Proposed Project. In limited instances, the alignment would be installed within 50 feet or less from an existing residence.

Construction would include trenching, pipe laying, and backfilling of open trenches. Pipeline installation could occur at a typically rate of 700 to 1,000 feet per day in those reaches of the alignments that cross open land or low-use sections of roadways. Noise generated along reaches of the pipeline would depend upon the types and number of equipment required. As identified in **Table 3.7-2**, the noisiest construction activities would involve the excavation and backfilling of the trench. For those residences within 50 feet of construction activities, noise exposure could reach upwards of 89 dBA, Leq. Instantaneous noise levels could exceed 90 dBA, as shown in **Table 3.7-3**. However, at an installation rate of 700 to 1,000 feet per day, periods of intrusive noise exposure would be of short duration, on average of a few days, including the time required for alignment preparation, trenching, pipe laying, backfilling, and restoration. Regardless of the fact, construction noise of this magnitude would, at times, exceed the daytime hourly noise standard for Stanislaus County of 50 dBA/Leq. Furthermore, it is possible that construction activities would at times create ambient conditions exceeding Stanislaus County's day-night noise standards and/or the cumulative duration standards of one-half hour, fifteen minutes, five minutes, and one minute. For these reasons, noise impacts to existing rural residences within 50 to 200 feet of a proposed alignment are considered potentially significant.

Since construction activities would substantially increase ambient noise levels at noise-sensitive locations, albeit temporarily in most instances, construction noise is considered a potentially significant effect of the project.

Mitigation Measures

3.7.1a Construction activities within rural residential areas shall be limited to the hours and days specified by the County as follows:

TABLE 3.7-2
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, L_{eq})[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: Bolt, Baranek, and Newman, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, 1971.

TABLE 3.7-3
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Noise Level (dBA) @ 50 Feet	With Feasible Noise Control[1]
Earthmoving:		
Front Loader	79	75
Backhoe	85	75
Dozer	80	75
Tractor	80	75
Scraper	88	80
Grader	85	75
Paver	89	80
Materials Handling:		
Concrete Mixer	85	75
Concrete Pump	82	75
Crane	83	75
Stationary:		
Pump	76	75
Generator	78	75
	81	75
Impact:		
Pile Driver	101	95
Jack Hammer	88	75
Rock Drill	98	80
Pneumatic Tools	86	80
Other:		
Saw	78	75
Vibrator	76	75

[1] Estimated levels obtainable by selecting quieter procedures or machines and implementing noise-control features requiring no major redesign or extreme cost.

SOURCE: U.S. Environmental Protection Agency (1971)

1. **Construction activity is limited to hours and days when noise standard exemptions apply, per encroachment permit.**

2. **If construction outside those exempt time periods is proposed, the City shall obtain a variance from the County.**

3. **Where no construction exemption is granted, construction shall be scheduled between 7:00 a.m. to 7:00 p.m., Monday to Friday, or other hours and days as established by the County in applicable encroachment permits.**

3.7.1b The City shall require in construction specifications that the contractor select staging areas as far as feasibly possible from existing residences. Activities within these staging areas shall conform to the time limitations established in Mitigation Measure 3.7.1a.

3.7.1c Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturers' specifications) and by shrouding or shielding impact tools. All equipment shall have sound-control devices no less effective than those provided by the manufacturer.

3.7.1d The City shall require in construction specifications that the contractor place all stationary noise generating construction equipment as far away as feasibly possible from sensitive receptors or in an orientation minimizing noise impacts (i.e., behind existing barriers or storage piles, etc.).

Significance After Mitigation

Implementation of the prescribed mitigation would effectively reduce construction-related noise impacts to a less-than-significant level.

Impact

3.7.2 The Proposed Project could result in a substantial permanent increase in ambient noise levels in the project vicinity. (Less-than-Significant)

Operation of the pump station would result in the generation of noise from pump machinery. Land use surrounding the proposed site of the pump station is exclusively zoned for agricultural land uses with several residences are located approximately 200 to 250 feet north of the proposed site. As indicated in Chapter 2.0, at build-out the pump station would consist of six 250 horsepower pumps with five operating on a continual basis and one serving as backup. As previously indicated, the ambient noise environment is dominated by various agricultural land uses resulting in noise levels that range from 45 to 55 dBA with higher, isolated peaks. Given that the pump station would be housed within an enclosed structure in conjunction with the distances of the nearest sensitive receptors, noise generated by the new pump station would generally correspond with existing noise levels. The pump station associated with the aeration facility would be located over 1,000 feet from the nearest sensitive receptor. With the installation of the noise attenuation design features outlined in Chapter 2.0, long-term noise impacts resulting from the proposed project are considered less-than-significant.

Mitigation Measure

No mitigation is necessary.

3.8 TRANSPORTATION AND TRAFFIC CIRCULATION

This section addresses transportation and traffic issues related to construction of the Proposed Project. This evaluation is based on review of local transportation plans and policies and field reconnaissance.

3.8.1 SETTING

REGIONAL TRANSPORTATION NETWORK

Stanislaus County

Stanislaus County is served by several major highways including Interstate 5, Highway 99 Highway 165, 132, and County Road J17 (West Main). SR 33 is a two-lane and four-lane, north-south route that runs parallel to I-5 between Patterson and Newman. SR 108 has an east-west alignment from Riverbank and SR 219 to the county. Within the county, SR 108 connects to SR 120. SR 120 is a major east-west, two- and four-lane state highway in northern Stanislaus County that is the continuation of the primary pathway to Yosemite National Park. SR 120 connects Oakdale to San Joaquin County.

SR 132 travels throughout the county in an east-west two-lane configuration, through the heart of Modesto. This highway is known as Maze Boulevard west of SR 99 and as Yosemite Boulevard east of the SR 99. SR 165 is a north-south facility located in the southern portion of the county, between the Merced County line and SR 99 in Turlock. SR 219 is a two- and four- lane, east-west highway that connects with SR 99 near Salida and SR 108 in Modesto.

Designated Truck Routes

Highways 132, 108, and 120 are the east-west arteries running through the county. The north-south arteries are SR 99 and Interstate 5. All county roads, unless otherwise signed, are designated truck routes.

Transit Service

The Stanislaus Regional Transit fixed route service is available on weekdays and Saturdays except the Patterson/Turlock route, which is available on weekdays only. The Modesto/Turlock Bus Route 10 Express operates Monday through Friday between 5:15 a.m. and 6:35 p.m. This bus operates ten round trips between Modesto and Turlock. The Westside Runabout Bus (Newman/Patterson/Turlock) runs Monday through Saturday between 7:00 a.m. and 6:00 p.m. This bus operates three round trips between Patterson and Turlock.

Turlock Transit Lines provides public transportation services via both the Bus Line Service of Turlock (BLAST) and Dial-A-Ride of Turlock (DART). BLAST service operates Monday through Saturday, from 5:45 a.m. through 5:45 p.m. and from 8:45 a.m. through 5:00 p.m. on Saturday. BLAST serves virtually all major focal points in Turlock and Denair. The Modesto-Turlock Route 15 begins near Turlock's Central Park, heads north on Greer Road, west on Monte

Vista Road, south on Highway 99, east on Fulkerth Road, and south on Golden State Boulevard then returning to the Central Park Loop. DART provides curb to curb service to senior and disabled passengers in the greater Turlock and Denair areas. DART service operates Monday through Friday, between 6:00 a.m. and 6:00 p.m., and on Saturday, between 9:00 a.m.and 5:00 p.m., and in Denair areas from Monday through Saturday, from 9:00 a.m. through 5:00 p.m.

Bikeways/Pedestrian Circulation

The regional network of bicycle facilities includes a variety of Class I, II, and III bikeways within the cities and communities of Stanislaus County. Class I bicycle facilities also known as bike paths. Class II facilities are more commonly known as bike lanes, and are designated by striping in paved roads or street ROW. Bicyclists using these facilities share the roadway with cars. The bike lanes are clearly marked and distinguished as guideways for bicycles. Class III facilities are bike routes that share ROW with other vehicles but have no striping or recognizable designation other than signage. There are no designated bicycle facilities within the project area.

EXISTING TRAFFIC VOLUMES

Daily traffic volumes in Stanislaus County range from more than 75,000 average daily trips (ADT) on SR 99 to more than 30,000 ADT on arterials such as Golden State Boulevard to less than 2,000 ADT on local streets such as Patterson Road. Traffic volumes are summarized in **Table 3.8-1**.

TABLE 3.8-1
EXISTING DAILY TRAFFIC VOLUMES ON ROADWAYS IN AND AROUND THE PROJECT AREA

Roadway	Location	Daily Traffic (ADT)
Highway/Interstates/Routes		
SR 99	North of Service Road	69,755
	South of West Main (Turlock)	43,819
	North of SR 219	57,756
	North of SR 132	77,005
SR 132	East of Geer/Albers Roads	12,907
	West of San Joaquin River	23,488
	East of Oakdale-Waterford Highway	5,124
	West of El Vista/Mitchell Road	22,506
SR 132 (Maze Boulevard)	East of Carpenter Road	11,088
Local Roads		
Carpenter Road	North of Tuolumne River	18,453
Crows Landing Road	South of Hatch Road	27,022
Golden State	North of Keyes Road	9,314
Keyes Road	West of Geer Road	2,363
Las Palmas Avenue	West of Mitchell Road	14,302
Patterson Road	North of Briggsmore Avenue	30,057
Pelandale Avenue	West of Dale Road	6,860
West Main Street	East of Crows Landing Road	6,959

Source: Stanislaus Council of Governments 2001

REGULATORY SETTING

STANISLAUS COUNTY GENERAL PLAN

The Circulation Element of the Stanislaus County General Plan contains the following relevant policies:

POLICY 3: The County Capital Improvement Project (CIP) shall be consistent with the General Plan.

POLICY 4: A circulation system shall be developed that provides for streets in all classifications (freeway, expressway, major, collector, local, minor, and private) as necessary to provide access to all parts of the county based on the anticipated land use.

POLICY 6: Bikeways and pedestrian paths shall be routed to provide reasonable access from residential areas to major bicycle and pedestrian traffic destinations such as schools, recreation and transportation facilities, centers of employment, and shopping areas.

3.8.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

According to CEQA, a project that would cause an increase in traffic that is substantial in relation the existing traffic load and capacity of the street system is considered to have a significant impact on the environment. For the Proposed Project, an impact would be considered potentially significant for the following conditions:

- Pipelines are installed within roadways or across major streets that are important to local circulation.
- Construction activity significantly impedes access to adjacent uses, including emergency access.
- Construction activity poses a traffic safety hazard to motor vehicles, bicyclists, or pedestrians.
- The movement of heavy vehicles causes substantial damage or wear of public roadways.
- Construction activities substantially affect local transit service.
- Construction substantially affects parking supplies.

METHODOLOGY

Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions or level of service on any project roadways. The primary off-site impacts from construction vehicle traffic would include short term and

intermittent reductions of roadway capacities. Lane blockage caused by construction traffic would also be temporary and would only impact roadway capacity within affected streets. The Proposed Project would be constructed on a designated truck route and would be used as construction haul routes to the extent possible. The use of these routes would reduce construction related traffic in the project area.

Construction activities during the hours of 7:00 a.m. through 9:00 a.m. and 4:00 a.m. through 6:00 p.m. would coincide with peak level traffic and could impede traffic flows. Lane blockage during peak traffic flows would have an even greater impact on traffic flows.

IMPACT ANALYSIS

Impact

3.8.1 Construction of the proposed pipeline would reduce the available width of or in some instances the entire roadway, thereby resulting in short-term yet significant traffic delays for vehicles traveling past the construction zone on the affected roadways. (Potentially Significant)

Construction of the pipeline would involve open-cut trenching along Harding Road. The proposed pipeline diameter size would be 36 inches, thereby requiring a trench width of up to 10 feet. The temporary construction zone for pipeline installation would be no larger than 135 feet wide, which would allow truck and equipment access alongside the trench. In recognition of constrained roadway widths along the pipeline alignment, the minimally acceptable construction zone width would be 60 feet.[1] Pipeline installation could occur at a rate of up to 700 to 1,000 feet per day. At this time it is anticipated that approximately 12 workers would be working on the pipeline on a typical work day. Construction activities would also involve a pump station (see Chapter 2.0) which would be located in a vacant lot to the northeastern side of the intersection of Harding and Prairie Flower Roads.

The roadways with possibly greater ongoing traffic include Carpenter Road, and Crows Landing Road. The ongoing traffic on Harding Road and intersecting roadways such as Prairie Flower Road, Central Avenue and Blaker Road in the project area is expected to primarily include vehicles that belong to the local residents and farm workers.

Mitigation Measures

3.8.1a Prior to the onset of construction of the project, a Traffic Control Plan will be prepared for all project-affected roadways and intersections. The Traffic Control Plan shall comply with requirements in all relevant encroachment permits issued by Stanislaus County. The Traffic Control Plan to be prepared by the construction contractor(s) may include the following measures:

[1] The basis for establishing a minimum width of construction zone is the need to maintain, at a minimum, alternate one-way traffic flow past the construction zone, requiring at least a 10-foot travel width. If it is not possible to provide that minimum 10-foot travel width, then the roadway would have to be closed to all except emergency vehicles during construction work hours.

- **Maintain the maximum amount of travel lane capacity during non-construction periods, with all trenches covered with steel plates or backfilled and roadways open for use.**

- **Use detour signing on alternate access streets when temporary full street closure is required. Alternatively, limit the construction work zone in each block to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone where feasible.**

- **Restrict construction to non-peak traffic periods as required for specific work sites in encroachment permits. Weekend and night work shifts may be considered in non-residential areas only.**

- **Coordinate construction activities (time of year and duration) to minimize traffic disturbances adjacent to agricultural areas and dairies.**

- **Post advanced warning of construction activities (e.g., signs, articles in newspapers, notices on radio/TV, etc.) to allow motorists to select alternative routes in advance.**

- **Specifications that allow for direct passage for bicyclists and pedestrians in all areas potentially affected by project construction. If direct passage is not feasible, the detour routes shall be provided.**

- **Warning signs and speed control (including signs informing drivers of State-legislated double fines for speed infractions in a construction zone) shall be provided, where necessary, to achieve required speed reductions for safe traffic flow through the work zone.**

3.8.1b Prior to onset of construction, and in consultation with Stanislaus County, the City's construction contractor(s) shall identify areas where night construction[2] may be appropriate. Night construction shall be performed in all areas identified, but not within 1,000 feet on an existing residence.

3.8.1c Expedite construction by using multiple work crews so that disturbances are kept as short in duration as possible.

3.8.1d Arrange for a 24-hour telephone hotline to address public questions and complaints during project construction, and to offer information about detours, etc.

Significance After Mitigation

The implementation of all the prescribed mitigation measures would reduce the impact to the circulation system to a **less-than-significant** level.

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2 In this instance, nighttime construction includes the time period from 10:00 pm through 7:00 am, which corresponds with Stanislaus County's stationary source noise performance standards for nighttime.

Impact

3.8.2 Construction of the Proposed Project would generate short-term increases in vehicle trips by construction workers and construction vehicles. (Potentially Significant)

Project traffic would be generated from two sources: truck trips to and from the work site(s), and construction work crews and supervisor staff working onsite(s). The impact of construction-related traffic would be temporary and intermittent lessening of the capacities of access streets and haul routes because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles, as well as traffic-related effects such as noise and vibration. Lane blockage due to queued trucks, if it were to occur, would temporarily reduce the roadway capacity of the affected streets. Specific haul routes for the project would be designated after consultation with Stanislaus County Public Works staff.

Project truck traffic occurring during the hours of 7:00 a.m. through 9:00 a.m. and 4:00 p.m. through 6:00 p.m. would coincide with peak-hour traffic and could impede traffic flow. Blockage during times of peak traffic flow would have greater potential to create conflicts than during off-peak hours because of the greater numbers of vehicles on the streets during the peak hour that would have to maneuver around the queued trucks. Project-generated traffic would be dispersed throughout the day, thus minimizing the effect on peak-hour traffic. Increased vehicle trips related to construction of the pipeline alignments would be a significant impact that would be reduced to less-than-significant with EIR-identified mitigation.

Mitigation Measure

3.8.2a As part of the Traffic Control Plan for roadway segments and intersections (see Measure 3.9.1a), designated haul routes will be specified for the project after consultation with relevant agencies (e.g., Caltrans and County Public Works).

3.8.2b To the extent possible, daily work sites will be scheduled such that their relative locations shall disperse truck trips over a number of different haul routes, thereby lessening the number of truck trips on any one road. In addition, construction worker and truck trips during peak traffic periods shall be avoided, to the extent possible.

Significance After Mitigation

Implementation of all the prescribed mitigation would reduce this impact to as a **less-than-significant** level.

Impact

3.8.3 Construction of the Proposed Project would affect access to adjacent land uses and streets for both general and emergency traffic and for bicycle/pedestrian access. (Potentially Significant)

Access to agricultural lands, driveways and to cross streets along the pipeline construction route would be temporarily blocked due to trenching and paving. This could be disruptive, particularly with respect to agricultural operations, dairies and orchards, as well as for movement of emergency vehicles through the project area. Vehicle access would be restored at the end of each work day through the use of steel trench plates or trench backfilling. There are no bicycle or pedestrian trails within the proposed alignments, although, bicyclists and pedestrians should be expected on all roadways.

Mitigation Measures

3.8.3a As part of the Traffic Control Plan for roadway segments and intersections (Measure 3.9.1a), comprehensive strategies for maintaining emergency access shall be developed for sensitive land uses such as residential and agricultural areas in consultation with the facility owner or administrator. Strategies shall include, but not be limited to, maintaining steel trench plates at the construction sites to restore access across open trenches, and identification of alternate routing around construction zones. Also, police, fire, and other emergency service providers shall be notified of the timing, location, and duration of construction activities and the location of detours and lane closures.

3.8.3b Implement Mitigation Measure 3.8.1b.

3.8.3c Use detour signing on alternate access streets established when temporary full street closure is required.

3.8.3d The City shall provide a minimum 72-hour advance notice of access restrictions for residents and businesses.

Significance After Mitigation

Implementation of all the prescribed mitigation would reduce this impact to as a **less-than-significant** level.

Impact

3.8.4 Construction of the Proposed Project would not result in any significant disruptions to transit service. (Less-than-Significant)

Aside from Dial-A-Ride services, no transit routes directly cross the proposed pipeline alignment. Dial-A-Ride services utilized by residents located along the proposed route would be still be available to current riders and would largely be unaffected by the Proposed Project. Implementation of Mitigation 3.8.1a would further ensure that impacts to transit service are less-than-significant.

Mitigation Measure

No further mitigation required.

Impact

3.8.5 Construction of the Proposed Project would generate a demand for parking spaces for construction worker vehicles. In addition, pipeline construction could temporarily displace on-street parking along the proposed alignment. (Potentially Significant)

The project would generate a need for parking for construction workers. Assuming each worker drives alone to each day's work location, each crew would require up to 10 to 15 parking spaces. Pipeline installation within roads would, in some cases, displace available parking spaces in the construction work zone. In those areas construction workers would have to park outside the immediate construction area including the pump station. The loss of parking area available and the added walking distance from parking to one's destination or to the work site is considered a potentially significant impact of the project.

Mitigation Measures

3.8.5 Construction contracts shall require the contractor(s) to provide off-street parking for construction worker's vehicles in the vicinity of the work zone, or, workers may be shuttled to the work site from an off-site location.

Significance After Mitigation

Less-than-significant.

Impact

3.8.6 Construction of the Proposed Project would increase potential traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways. (Potentially Significant).

Trucks used for construction in the project area roadways would interact with other vehicles. Creation of a construction work zone on high-volume and/or high-speed roadways heightens concerns about increased traffic safety hazards because of the need to safely transition traffic into the travel lane(s) adjacent to the work zone. In addition, lane blockages or roadway closures during pipeline installation could result in temporary alterations in cyclist and pedestrian circulation. Project construction could conflict with cyclist and pedestrian use on roads including Harding, Prairie Flower, Crows Landing, and Carpenter Roads. However, bicycle and pedestrian uses are expected to be restricted to the residents and/or workers in the area. Refer to Section 3.11 for recreation use. Implementation of measures outlined in Mitigation Measure 3.8.1a would reduce this impact to a less-than-significant level.

Mitigation Measure

3.8.6 Implement Mitigation Measure 3.8.1a.

Significance After Mitigation

Less-than-significant.

Impact

3.8.7 Construction of the Proposed Project would increase wear and tear on the designated haul routes used by construction vehicles to access the project work site(s). (Potentially Significant)

The use of large trucks to transport equipment and material to and from the project work site(s) could affect road conditions on the designated haul routes by increasing the rate of road wear. The degree to which this impact would occur depends on the design (pavement type and thickness) and the existing condition of the road. Major arterials and collectors are designed to accommodate a mix of vehicle types, including heavy trucks. The potential impacts are expected to be negligible on those roads.

Residential and rural streets are generally not built with a pavement thickness that will withstand substantial traffic volumes. In addition, agricultural and dirt roads would not withstand substantial traffic volumes of heavy construction vehicles. Installation of pipeline segments, regardless of its associated route, would extend through these areas and could result in significant roadwear. This impact is considered potentially significant.

Mitigation Measures

3.8.7a Prior to construction, the City's construction contractor(s) will be responsible for assessing current road conditions for all project routes in efforts to develop post-construction road restoration requirements. An agreement shall be entered into by the City and corresponding jurisdiction prior to construction that details post-construction road restoration requirements. Staff of the Stanislaus County Public Works Department shall review the post-construction restoration standards for each of the affected haul routes. The City shall perform roadway repairs or rehabilitation as necessary such that post-construction requirements are met.

3.8.7b The City shall obtain encroachment permits from Stanislaus County prior to construction of the project, and comply with haul route designations, and roadway wear monitoring and repairs conditions.

Significance After Mitigation

Implementation of all the prescribed mitigation would effectively reduce this impact to a **less-than-significant** level.

3.9 GEOLOGY, SOILS, AND SEISMICITY

3.9.1 SETTING

SITE GEOLOGY

The project area is located in the Great Valley geomorphic province, a nearly flat alluvial plain extending from the Tehachapi Mountains in the south to the Klamath Mountains in the north, and from the Sierra Nevada Batholiths in the east to the Coastal Ranges in the west (Hackel, 1966). The valley is approximately 450 miles long and has an average width of 50 miles. Elevations across the alluvial plain generally range from a few feet below msl to about 400 feet above msl. The project area is located in the southern portion of the valley, as delineated by the Stockton Arch, and is commonly referred to as the San Joaquin Valley.

The San Joaquin Valley is a deep basin filled with a thick sequence of Jurassic to Holocene (last 10,000 years) alluvial deposits that are eroded from the eastern Sierra Nevada Range and the western Coastal Ranges. The sediments are transported to the valley primarily by tributaries of the San Joaquin River. A slight downslope gradient allows the valley to drain north into the Sacramento-San Joaquin Delta. Alluvial deposits, consisting of unconsolidated and semi-consolidated lake, terrace, and playa deposits from the Pleistocene epoch, form the central plain of the valley.). Tertiary and Cretaceous outcrops border the central plain of the valley (Wagner et al., 1990).

The immediate project area is underlain by what is commonly referred to as the Modesto Formation (Wagner et. al., 1990) with site elevations ranging from approximately 50 feet to just over 100 feet above msl. The Modesto Formation consists of Holocene and Pleistocene-aged (last 1.6 million years) alluvial deposits. The alluvium is typically interbedded with layers of gravel, sand, silt, and clay ranging in thickness from 100 to 300 feet.

LOCALLY DERIVED SOILS

Soils residing within the project area are derived from the downslope migration of loess[1]and alluvial materials, mainly from granitic rock sources, originating along the western slopes of the Sierra Nevada Mountains. A majority of the project area is characterized by deep, well-drained, and coarse-textured soils that contain a low percentage of organic materials and formed on young alluvial fans. Variably stratified[2] loams with a substantial quantity of calcareous[3] materials typically characterize the subsurface. These soils have been leveled and, in some case drained, to allow for agricultural usage. Soils located at the eastern edge of the San Joaquin River flood plain are characterized by slower permeability, higher percentages of clay in the subsurface, and,

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1 Loess – Material transported and deposited by wind and consisting of predominantly silt-sized particles (Brady and Weil, 1996).

2 Stratified – Soil is arranged in or composed of strata or layers.

3 Calcareous – Soil containing sufficient calcium carbonate (often with magnesium carbonate) to effervesce visibly when treated with cold 0.1 N hydrochloric acid.

in some cases, are saline-alkali[4] affected. According to the Natural Resource Conservation Service's (NRCS) Soil Surveys for Stanislaus County, the project area is comprised of variations of these general soil types.

Soils in the project area are characterized by shallow groundwater, which in some cases rises to within one foot of the surface, and are subject to prolonged saturation during winter months due to their low landscape positions. A number of localized drainage features and pumping systems have been constructed in the project area and have effectively lowered the water table in some portions of the project area. These drainage features are further discussed in **Section 3.1**, **Water Resources**. In many circumstances, the lowering of the water table has led to the leaching of surface salts, thereby increasing local agricultural productivity.

SOIL HAZARDS

Erosion

Erosion is the detachment and movement of soil materials through natural processes or human activities. Depending on the local landscape and climatic conditions, erosion may be very slow to very rapid. The detachment of soil particles can be initiated through the suspension of material in either a hydraulic (water) or eolian (wind) setting. The project area resides within a Mediterranean climate, which is characterized by moist winters and dry summers. Therefore, during the winter the area is more prone to erosion from water, whereas during the summer the project area is more susceptible to erosion from wind. Local soil resources in the immediate project area are highly influenced by local wind patterns and contain a relatively low proportion of clay in the upper surface horizons. The general absence of clay in the surface layer tends to decrease its overall cohesiveness, thereby increasing its susceptibility to either form of erosion. For this reason, erosion is considered a problematic issue and is discussed further in the impact analysis.

Expansive Soils

Expansive soils possess a shrink-swell characteristic.[6] Structures placed on expansive soils may sustain damage over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Expansive soils are largely comprised of clays, which expand in volume when water is absorbed and shrink when dried. It recognized that project-related structures and pipelines will be constructed in accordance with requirements outlined in the (2000) UBC and recommendations set forth in future geotechnical

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4 Alkaline – Any soils that has a pH of greater than 7.

6 "Shrink-swell" is the cyclical expansion and contraction that occurs in fine-grained clay sediments from wetting and drying. Structures located on soils with this characteristic may be damaged over a long period of time, usually as the result of inadequate foundation engineering.

investigations. Due to a lack of available information regarding the location and depth to expansive soils in the project area, this issue is discussed further in the impact analysis.

REGIONAL SEISMICITY

The San Francisco Bay Area region, to the west of the project area, contains both active and potentially active faults, and is considered a region of high seismic activity.[7] The 2000 UBC locates the entire eastern Bay Area region within Seismic Risk Zone 4. Areas within Zone 4 are expected to experience maximum magnitudes and damage in the event of an earthquake (Lindeburg, 1998). The project area is located over 55 miles east of the Bay Area and lies within Seismic Risk Zone 3. The project area could be affected by regionally occurring earthquakes; however, impacts resulting from such an event would be less than those experienced in the Bay Area.

Shaking Intensity

Earthquakes on the various active and potentially active San Francisco Bay Area fault systems are expected to produce a wide range of groundshaking[8] intensities within the vicinity of the project area. The estimated maximum (moment) magnitudes (Mw) (**Table 3.9-1**) represent characteristic earthquakes on particular faults.[9]

While the magnitude is a measure of the energy released in an earthquake, intensity is a measure of the groundshaking effects at a particular location. Shaking intensity can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The Modified Mercalli (MM) intensity scale is commonly used to measure earthquake effects due to groundshaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total). MM intensities ranging from IV to X could cause moderate to significant structural damage.[10]

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7 An *active* fault is defined by the State of California as a fault that has had surface displacement within Holocene time (approximately the last 10,000 years). A *potentially active* fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not, of course, mean that faults lacking evidence of surface displacement are necessarily inactive. *Sufficiently active* is also used to describe a fault if there is some evidence that Holocene displacement occurred on one or more of its segments or branches (Hart, 1997).

8 Ground shaking can be described in terms of peak acceleration, peak velocity, and displacement of the ground. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill.

9 Moment magnitude is related to the physical size of a fault rupture and movement across a fault. Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CDMG, 1997).

10 The damage level represents the estimated overall level of damage that will occur for various MM intensity levels. The damage, however, will not be uniform. Some buildings will experience substantially more damage than this overall level, and others will experience substantially less damage. Not all buildings perform identically in an earthquake. The age, material, type, method of construction, size, and shape of a building all affect its performance (ABAG, 1998).

Regional Faults

According to the Fault Activity Map of California (Jennings, 1994), the nearest faults to the site with historic displacement (activity within the last 200 years) are San Andreas, Hayward, and Calaveras faults, located approximately 72, 53, and 50 miles away from the western edge of the project area. Portions of the Greenville fault zone also have been rated as being active within the last 200 years and those portions are located approximately 34 miles northwest of the area. A major earthquake on any of these faults could induce groundshaking in the project area. The location of those faults is illustrated in **Figure 3.9-1**.

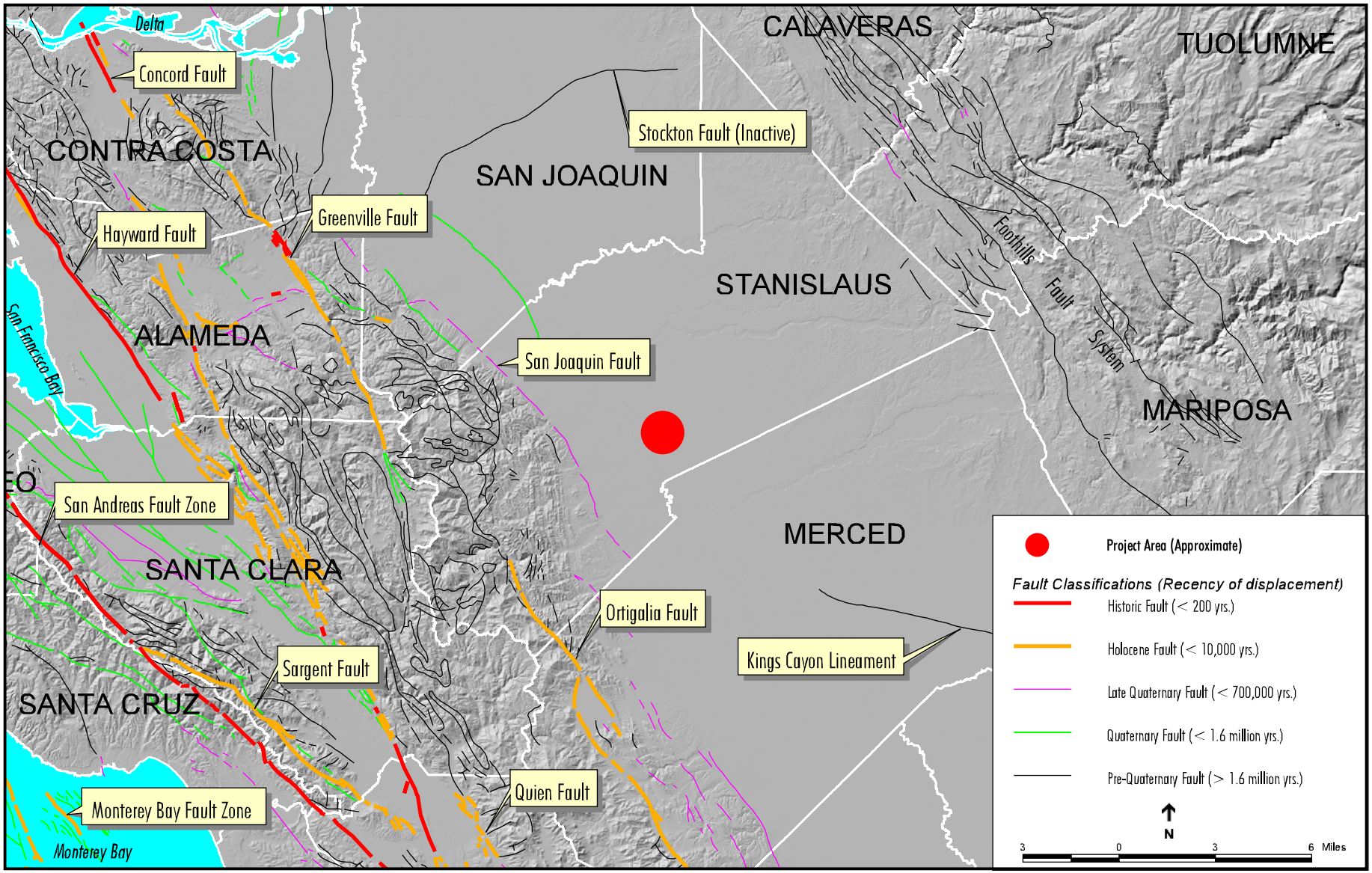
Within the western portion of Stanislaus County, in the Diablo Range, the most recent fault movements have been along the Ortigalita Fault. The State of California Geological Survey (CGS) [previously the Division of Mines and Geology] has designated the Ortigalita Fault as an active fault and delineated the potential ground rupture zone in Special Publication 42 (Alquist-Priolo Earthquake Fault Zoning Map). The 1,000-foot wide zone along the Ortigalita Fault extends into Stanislaus County approximately seven miles (Stanislaus County General Plan Support Documentation, June 1987). To the west of the project area, the San Joaquin Fault runs along the edge of the Diablo Range, closely paralleling Interstate 5. The Faulty Activity Map for California maps indicates that this fault has experienced displacement during the late Quaternary (approximately 700,000 years ago). In the extreme eastern portion of the county there are the Bear Mountain and Melones Faults, which are considered to be inactive and have not experienced displacement in the last 1.6 million years. **Table 3.9-1** provides a list of the active and potentially active faults in the vicinity of the project area.

A seismically-active, concealed (blind) fold and thrust belt, referred to as the Coast Range-Central Valley (CRCV) Geomorphic Boundary, lies approximately 15 miles west of project area. Earthquakes associated with this fault system include the 6.1 (Mw) Kettleman Hills and 6.5 (Mw) Coalinga events (Wakabayashi and Smith, 1994). Published estimates of the CRCV slip rate derived from previous studies range from 1 to 10 mm/year, and estimated reoccurrence intervals of the Coalinga-type events range from 200 to 2000 years. The concealed CRCV thrust is speculated to have produced the Vacaville-Winters earthquake (estimated 6.75 MM intensity) (Wakabayashi and Smith, 1994).

Seismic Structural Safety

The CGS has determined the probability of earthquake occurrences and their associated peak ground accelerations throughout the State of California. According to the CGS probabilistic seismic hazard map for California, peak ground accelerations in the project area could range from 0.20 g to 0.30 g (Peterson, 2002).[11]

[11] A probabilistic seismic hazard map is a map that shows the hazard from earthquakes that geologists and seismologists agree could occur in California. It is probabilistic in the sense that the analysis takes into consideration the uncertainties in the size and location of earthquakes and the resulting ground motions that can affect a particular site. The maps are typically expressed in terms of probability of exceeding a certain ground motion. For example, the 10% probability of exceedance in 50 years maps depict an annual probability of 1 in 475 of being exceeded each year and allows engineers to design buildings for larger ground motions than what geologists and seismologists think will occur during a 50-year interval, which will make buildings safer than if they were only designed for the ground motions that are expected to occur in the next 50 years.



SOURCE: Environmental Science Associates, 2002

Harding Drain Bypass Project / 203206 ■

Figure 3.9-1
Regional Fault Locations

TABLE 3.9-1
ACTIVE AND POTENTIALLY ACTIVE FAULTS IN THE VICINITY OF THE PROJECT AREA

Fault Zone	Location Relative to Stockton	Recency of Faulting[a]	Historical Seismicity[b]	Slip Rate [c] (mm/year)	Maximum Moment Magnitude [d]
San Andreas (Peninsula and Santa Cruz segments)	72 miles west	Historic	M 7.1: 1989 M 8.25: 1906 M 7.0: 1838 Many <M 6	17.0	7.3
Hayward	53 miles west-northwest	Historic	M 6.8: 1868 M 7.0: 1838 Many <M 4.5	9.0	6.9
Calaveras	50 miles west	Historic	M 6.1: 1984 M 5.9: 1979 Many <M 6.5	15.0 (Maximum)	6.8
Concord–Green Valley	50 miles northwest	Historic	Active Creep[e]	6.0	6.9
Marsh-Greenville	34 miles northwest	Historic	5.8	2.0	6.9
Ortigalita	20 miles west-southwest	Holocene	N/A	1.0	6.9
CRCV (segments 8-9)	15 miles west (Approximate)	Holocene	Coalinga: 6.5 Kettleman Hills: 6.1	3-8	6.0

a Recency of faulting from Jennings, 1994. Historic: displacement during historic time (within last 200 years), including areas of known fault creep; Holocene: evidence of displacement during the last 10,000 years; Quaternary: evidence of displacement during the last 1.6 million years; Pre-Quaternary: no recognized displacement during the last 1.6 million years (but not necessarily inactive).

b Richter magnitude (M) and year for recent and/or large events.

c Slip Rate = Long-term average total of fault movement including earthquake movement, slip, expressed in millimeters.

d The Maximum Moment Magnitude is an estimate of the size of a *characteristic* earthquake capable of occurring on a particular fault. Moment magnitude is related to the physical size of a fault rupture and movement across a fault. Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CDMG, 1997). Richter magnitude estimations can be generally higher than moment magnitude estimations.

e Slow fault movement that occurs over time without producing an earthquake.

N/A = Not applicable and/or not available.

SOURCES: Jennings, C.W. 1994, Fault Activity Map of California (with Appendix), California Division of Mines and Geology, Geologic Data Map No. 6; Peterson, M.D., Bryant, W.A., Cramer, C.H., 1996, Probabilistic Seismic Hazard Assessment for the State of California by the California Department of Conservation, Division of Mines and Geology, Open File Report 96-08, USGS Open-File Report 96-706.

GEOLOGIC HAZARDS

Surface Fault Rupture

Surface expression of fault rupture is typically observed and is expected on or within close proximity to the causative fault.[13] The Ortigalita fault zone lies over 15 miles west of the project area. The project area is neither located within, nor crosses, a delineated Alquist-Priolo Earthquake Fault Zone (CDMG, 1997). For this reason, this issue is not discussed further in the impact analysis.

Liquefaction

Liquefaction is a process whereby unconsolidated, granular and saturated soil loses strength and fails when subjected to ground motion. The evaluation of potential for liquefaction must consider soil type, soil density, groundwater table, and the duration and intensity of shaking. The areas which are believed to have the greatest potential for liquefaction are those areas in which the water table is less than 20 feet below ground and the soils are predominately clean, relatively uniform, low-density sands. Clayey type soils are generally not subject to liquefaction.

Although no specific liquefaction hazards have been identified in Stanislaus County, the potential exists in areas where unconsolidated sediments are very wet and where a high water table underlies these sediments. The project area is characterized by relatively shallow ground water ranging from less than four feet to greater than twenty feet (see Section 3.1, Water Resources). The underlying soils are anticipated to be partially cemented and dense, coarse to fine sandy silts, silty fine sands, and sandy clays. Based upon these conditions, the potential for liquefaction will be highly dependant on the time of year and depth of the water table. Due to the generally unconsolidated nature of the underlying alluvium, the potential for liquefaction is considered moderate during the wet season.

Settlement

Settlement is the consolidation of the underlying soil when a load, such as that of a building or new fill material, is placed upon it. When soil materials settle at different rates depending on the load weight, it is referred to as differential settlement. The potential for differential settlement exists in environments comprised of low-density, unconsolidated material, such as floodplain river deposits. These environments include old lakes, sloughs, swamps, and streambeds. If fill materials are unconsolidated they have the potential to respond more adversely to additional load weights as compared to adjacent native soils.

Subsidence

Subsidence is the gradual settling or sinking of the earth's surface with little or no horizontal motion. Subsidence typically occurs in formations that overlie an aquifer where the groundwater

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[13] Fault rupture is displacement at the earth's surface resulting from fault movement associated with an earthquake.

level is gradually and consistently decreasing. The project area is within the San Joaquin groundwater basin and has been identified by the California Department of Water Resources (DWR) as experiencing overdraft (Stanislaus County General Plan Support Documentation, June 1987). Hydrocompaction and seismic shaking have also contributed to ground settling within isolated areas in the Valley.

Landslides

Landslide is a general term used for a falling mass of soil and rock. The immediate project area lacks any substantial relief, except for the banks of the Harding Drain, most of the significant relief is limited to the eastern and western county lines. In the context of the Proposed Project, minor slumping along levees and dikes is of more concern. It is the intent of the City to avoid disrupting the cut and fill slopes of any traversed levees as part of the project's construction. This issue is discussed further in the impact analysis.

Earthquake-Induced Inundation

Earthquakes can cause tsunami ("tidal waves"), seiches (oscillating waves in enclosed water bodies), and landslide splash waves in enclosed water bodies such as lakes, reservoirs, and the large channels. Earthquakes can also result in dam failures at reservoirs. Since the San Joaquin River is relatively shallow in the vicinity of the project area, the expected size of a seiche generated by a nearby fault source would be no more than a few inches in height and, therefore, would have little or no impact on the project area. Due to the substantial distance of the project area from any large reservoir, in conjunction with standard dam inspection practices, the hazard of inundation from the collapse of a dam feature is considered low. For this reason, this issue is not discussed further in this document.

Volcanic Hazards

The project area is located approximately 115 miles from Mono Lake - Long Valley Volcanic areas; therefore, the risk to the project area associated with volcanic hazards is extremely low. For this reason, this issue is not discussed further in this document.

MINERAL RESOURCES

CDMG has classified lands within the San Joaquin Valley region into Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act of 1975. The CDMG classified lands within the San Joaquin Valley region according to the presence or absence of significant sand, gravel, or stone deposits that are suitable as sources of aggregate. Areas classified as MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little or no likelihood exists for their presence. MRZ-2 areas are those where adequate information indicates that significant deposits are present. Areas classified as MRZ-3 contain mineral deposits, but their significance cannot be evaluated from available data.

Areas are classified as MRZ-4 where available information is inadequate for assignment to any other MRZ category.

There are no known aggregate resources or ongoing mineral extraction operations located in the immediate project area. The mineral deposits in Stanislaus County are found in the Coastal Range (Diablo Range) west of the project area, and the only significant sand and gravel deposits on the west side of the valley are found along Orestimba Creek, south of the project area. Sand and gravel resources are also found along the Stanislaus and Tuolumne Rivers, north of the project area (Stanislaus County General Plan Support Document, 1987).

REGULATORY CONTEXT

Alquist-Priolo Geologic Hazards Zone Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture and to prohibit the location of most structures for human occupancy across these traces. Cities and counties must regulate certain development programs within the zones, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement (Hart, 1997). Surface fault rupture is not necessarily restricted to the area within an Alquist-Priolo Zone. The project area is neither located within, nor crosses, a delineated Alquist-Priolo Earthquake Fault Zone (Hart, 1997).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development Programs within these zones. Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation of the site has to be conducted and appropriate mitigation measures incorporated into the project design. To date, a Seismic Hazard Map for the project area has not been produced.

California Uniform Building Code

The California Uniform Building Code is another name for the body of regulations known as the CCR, Title 24, Part 2, which is a portion of the California Building Standards Code. Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable.

Published by the International Conference of Building Officials, the UBC is a widely adopted model building code in the United States. The California Building Code incorporates by reference the UBC with necessary California amendments. About one-third of the text within the California Building Code has been tailored for California earthquake conditions.

The American Water Works Association has established probabilistic design criteria for peak ground accelerations associated with maximum credible earthquakes (MCE) for water and wastewater facilities. The UBC with California Amendments takes into consideration seismic forces and general considerations of site soil type. The UBC, however, considers primarily lateral forces in its design requirements. Vertical forces are currently being considered for incorporation into the code design requirements, as observations made in recent earthquakes (e.g., the 1994 Northridge Earthquake and the 1995 Kobe Earthquake) suggest that greater vertical motions were measured than had been considered in structural designs.

California Department of Transportation

Caltrans has developed roadway design standards including those for seismic safety. Considerations of earthquake hazards in roadway design are detailed in the Caltrans Highway Design Manual (1995). Modifications to local highways and roads are required to adhere to Caltrans engineering standards to minimize settlement.

3.9.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Based on the criteria derived from Appendix G of the CEQA Guidelines and the professional judgment of the City staff and its consultants, implementation of the Proposed Project would result in significant impact if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - rupture of a known earthquake fault, as delineated in 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 potentially active fault (Refer to Division of Mines and Geology Special Publication 42.),
  - strong seismic ground shaking,
  - seismic-related ground failure, including liquefaction,
  - landslides;
- Result in substantial soil erosion or the loss of topsoil to such a level that siltation would cause significant impact on water quality and aquatic habitats;

- 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;
- 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; or
- 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.

METHODOLOGY

The impact assessment uses a qualitative analysis to address soil resources, geologic hazards and primary and secondary effects of earthquakes. Geologic and seismic hazards that, as a result of the implementation of the Proposed Project, would expose people to injury and infrastructure to damage were considered in terms of an adverse impact to public safety. Loss of soil resources from erosion and sedimentation caused by the project were considered in terms of actual deterioration of the resource or as having other adverse effects on soil resources. The Proposed Project elements were evaluated in terms of the level of significance and whether the impacts were considered less-than-significant or significant. Potential water quality impacts caused by erosion and resulting sedimentation are described and addressed in Section 3.1 Water Resources.

IMPACT ANALYSIS

Impact

3.9.1 In the event of a major earthquake in the region, seismic groundshaking could cause collapse or structural damage to the proposed pipeline and associated facilities. Structural damage to project components resulting from substantial displacement along various fault sources could indirectly result in significant injury to people and disruption of major services (e.g., sanitary sewer). (Less-than-Significant)

Most structures, including buildings, roads, bridges, paved areas, and impoundments, as well as buried pipelines, are potentially subject to damage from earthquakes. Ground shaking is an unavoidable hazard for facilities in the San Francisco Bay and San Joaquin/Sacramento Valleys region. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the moment magnitude, and the duration of shaking. Groundshaking within the project area could cause significant damage, if not collapse, of proposed structures if not constructed in accordance with UBC requirements for Seismic Zone 3.

The proposed pipeline and associated pump station and post aeration structure would likely be subject to the effects of at least one major earthquake throughout the operational life of the project. Damage of the structural elements of the project, to the machinery, or injury of workers from a seismic event could result in temporary cessation of facility operations. Because the pipeline would be underground, structural damage to the actual pipe and pipe joints is expected to be less than damage to aboveground structures.

These hazards are unavoidable, but measures to reduce the hazard to an acceptable level of risk would be implemented as part of the Proposed Project. As indicated in Chapter 2.0, a licensed geotechnical engineer will perform a Geotechnical Investigation for each structural component of the project. These procedures are consistent with City General Plan policies. The recommendations of the investigation will be integrated in the structural design of the project. Additionally, the project would be constructed in accordance with applicable (2000) UBC regulations for areas with Seismic Risk Zone 3. The implementation of these required measures would reduce the potential for injury and the length of service interruptions during and after a seismic event and ensure a less-than-significant impact.

Mitigation Measure

No mitigation is required.

Impact

3.9.2 The presence of expansive and corrosive soils could result in structural damage to the proposed pipeline and associated facilities. (Less-than-Significant)

Typically, soils that exhibit expansive characteristics comprise the upper five feet of the surface. The effects of expansive soils could damage foundations of aboveground structures, paved roads and streets, and concrete slabs. Expansion and contraction of these soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, and uplift. A formal geotechnical investigation would be required to confirm the presence of expansive soils. As indicated in the Project Description, a formal geotechnical investigation would be performed for all project components. At that time, a determination would be made as to the presence of expansive soils. If present, the recommended engineering guidelines would be implemented as part of the facility's construction. Similarly, the geotechnical investigation would identify soil materials exhibiting a high concentration of salts that could pose corrosivity problems and provide corrective measures to address the issue. With this in mind, any impacts associated with expansive and/or corrosive soil materials are considered less-than-significant.

Mitigation Measure

No mitigation is required.

Impact

3.9.3 The project area could be subjected to geologic hazards, including liquefaction, differential settlement, total settlement, and minor slumping along the Harding Drain. (Less-than-Significant)

In the event of an earthquake in the San Francisco Bay Region or along the east and west margins of the San Joaquin/Sacramento Valleys, seismic hazards related to groundshaking could occur in the project area. Liquefaction of localized unconsolidated sand deposits in areas of high groundwater could result in lateral spreading and settlement of soils beneath the pipeline and associated above-grade structures (e.g., aeration facility). Liquefaction along the pipeline alignment could cause misalignment of the pipeline and result in failure of a coupling joint. Other adverse effects of liquefaction could include failure of backfill, damage to concrete slabs supporting pump station structures, and damage to service roads. Ground settlement due to groundshaking could result in breakage of pipes and underground power conduits.

As previously indicated under Impact 3.9.1, hazards associated with groundshaking are considered unavoidable; however, with the implementation of measures outlined in the Project Description, these hazards would be reduced to an acceptable level of risk. A licensed geotechnical engineer would identify areas susceptible to liquefaction, total settlement, and/or differential settlement during future Geotechnical Investigations for each structural component of the project. The recommendations of the investigation will be integrated in the structural design of each component. The implementation of these prescribed measures would reduce the potential for injury and the length of service interruptions during and after a seismic event and ensure a less-than-significant impact.

Mitigation Measure

No mitigation is required.

Impact

3.9.4 Implementation of the Proposed Project could result in increased surface soil erosion thereby lending to increased siltation of local waterways. (Potentially Significant)

Construction associated with each component of the Proposed Project has the potential to expose bare soil to precipitation and subsequent entrainment in surface runoff. Construction activities involving soil disturbance, excavation, cutting/filling, and grading activities could result in increased erosion and sedimentation to surface waters. The alignment would be constructed along the Harding Drain, which is an unlined canal. Construction too close to the banks of the drain could induce slumping along the canal's banks. Likewise, depths required needed to install the pipeline could expose construction workers to increased hazards associated with slumping within the trench. This would require additional efforts to maintain the integrity of the drain's slope. Additional mitigation would be required for this alternative, beyond mere compliance with standards for areas within UBC Seismic Hazard Zone 3 as provided in Chapter 2.0, Project Description. This would be addressed during construction and grading, by adopting erosion and sediment control measures. These measures will be conducted in accordance with City's' stormwater management requirements and best management practices for the reduction of pollutants in runoff (refer to Section 3.1, Water Resources). The components of the Proposed Project will be subject to NPDES requirements and would

require the acquisition of a NPDES general construction permit. Erosion of soil materials to local waterways and its effects on water quality is further discussed in Section 3.1, Water Resources.

Mitigation Measure

3.9.4 Implement Mitigation Measures 3.1.1a, 3.1.1b, and 3.1.1c.

Significance After Mitigation

Less-than-significant.

3.10 HAZARDOUS MATERIALS / PUBLIC HEALTH

This section provides an evaluation of the types of hazardous materials that will be used, stored, and potentially encountered during installation of the Proposed Project and the regulatory setting applicable to environmental protection, health, and safety.

3.10.1 SETTING

HAZARDOUS MATERIALS

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency.

Numerous materials used in business, commerce, manufacturing, and households are considered hazardous because of their chemical and physical properties. The CCR defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10).

Hazardous wastes are defined in the same manner. Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. According to Title 22 of the CCR, hazardous materials and hazardous wastes are classified according to four properties: toxic, ignitable, corrosive, and reactive (CCR, Title 22, Chapter 11, Article 3). Toxicity, ignitability, corrosivity, and reactivity are defined in the CCR, Title 22, Sections 66261.20-66261.24, as summarized below:

- Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or death. For example, toxic substances can cause disorientation, acute allergic reactions, asphyxiation, skin irritation, or other adverse health effects if human exposure exceeds certain levels that depend on the substances in question. Carcinogens (substances known to cause cancer) are a special class of toxic substances (examples of toxic substances include pesticides, heavy metal ions, etc.).

  Acute and chronic are terms most often used to describe toxicity. Acute toxicity is an adverse effect expressed by, or mortality of, an organism after the brief exposure to a chemical agent (Hodgson and Levi, 1987) (chemical agent, toxic substance, and toxic material are terms often used interchangeably). A substance is designated hazardous because of its hazardous properties. A chemical agent can either be hazardous or non-hazardous. For example, a chemical agent such as water is typically considered non-hazardous. The brief exposure can either be a single dosage or exposure over a short period of time. An acute toxic response is one that generally occurs shortly after exposure to a chemical agent, usually less than two weeks (Hodgson and Levi, 1987). Chronic toxicity is an expression of an adverse effect manifested over a long time period (often times the life span of the exposed organism or individual) of uptake of small quantities of a chemical

agent. The dose is small enough that acute effects are not expressed. Toxic responses associated with chronic toxicity range from carcinogenesis (cancer) to behavioral changes (Hodgson and Levi, 1987).

- Ignitable substances are hazardous because of their ability to burn. (Gasoline and methane gases are examples of ignitable substances.)
- Corrosive materials can cause severe burns or damage materials. (Examples include chlorine gas, sulfur dioxide gas, strong acids, and strong bases.)
- Reactive materials may cause explosions or generate toxic gases. (Dynamite and pressurized gases are examples of reactive materials.)

Toxic, ignitable, corrosive, and reactive materials are types of hazardous materials. A chemical that poses a significant hazard upon a single exposure is considered acutely hazardous if it is so designated by a regulatory agency (California Health and Safety Code, Section 25531). A hazardous waste is any hazardous material that is discarded, abandoned, or to be recycled. The criteria that render a material hazardous also make a waste hazardous (California Health and Safety Code, Section 25117).

Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

HAZARD, RISK, AND EXPOSURE

Under the framework of hazardous materials and associated potential impacts to public health and safety, a hazardous material would have an inherent toxicological risk. A toxicological risk is a probabilistic measure that some adverse effect (chronic or acute) would result from a given exposure to a chemical agent. Toxicological risk is a probability or an estimated frequency of occurrence that an adverse effect would be experienced. For instance, a lifetime risk of cancer of 1.0×10^{-6} (or one in one million) is simply a statement of probability. It should not be interpreted to mean one individual in one million individuals would contract cancer; simply the probability for a single exposed individual is 1.0×10^{-6}.

A hazard describes a potential adverse effect or effects of a given chemical agent (e.g., cancer). A statement of toxicological risk, therefore, is presented in terms of a probability that an adverse effect or outcome inherent to a given chemical agent would occur as a consequence of a given unit of exposure (Amdur et. al., 1991).

The means by which an individual is exposed to a chemical agent is classically defined through the four basic exposure pathways: inhalation, ingestion, bodily contact, and injection. These pathways are further defined below.

- Inhalation (breathing the hazardous agent) is the primary route of exposure for toxic fumes or vapors and is the primary exposure pathway at a distance from the source.

- Ingestion (swallowing the hazardous agent) is the primary route of exposure for contaminated food or water.
- Direct bodily contact (exposure to a hazardous agent through a splash or touching) requires immediate proximity to the hazardous agent. Direct bodily contact with hazardous fumes or vapors can also occur over a distance.
- Injection (exposure to a hazardous agent through the skin via a puncture from a needle or contaminated object) requires immediate proximity to the hazardous agent and usually occurs from improper handling or improper packing of hazardous agents.

The pathway by which an individual is exposed to a specific chemical agent can have a major effect on risk. For instance, a chemical agent may be toxic when ingested, but not when touched.

REGULATORY BACKGROUND

Hazardous materials are subject to numerous laws and regulations at all level of government. A summary of the most pertinent regulations and their administering agencies is provided in the following subsections.

Federal

At the federal level, human exposure to chemical agents, and in some cases the environment and wildlife, is regulated primarily by four agencies: the EPA, the Food and Drug Administration (FDA), the Occupational Safety and Health Administration (OSHA), and the Consumer Product Safety Commission (CPSC). The CPSC plays a limited role (primarily the labeling of consumer products) in regulating hazardous substances as they pertain to the Proposed Project and, therefore, will not be discussed further. The FDA primarily regulates food additives and contaminants, human drugs, medical devices, and cosmetics. Similarly, the FDA plays a limited role in regulating hazardous substances as they pertain to the Proposed Project and, therefore, will not be discussed further. In addition to these regulatory agencies, the U.S. Department of Transportation (DOT) regulates the interstate transport of hazardous materials.

The EPA and OSHA administer several critical congressional statutes, with each statute's emphasis on the protection of human health and the subsequent varied economic costs of such protection. For instance, under separate statutes, the EPA and OSHA may be mandated to regulate exposure to an identical substance using different significance thresholds based on the exposed individuals the agency represents, healthy workers are the primary focus of OSHA, and the general public and the environment are the primary focus of EPA. These differences often reflect the congressional objectives of the statute, the ability of the administering agency to regulate the substance of concern (i.e., does the agency have any enforcement authority over the action that leads to exposure), and the economic benefits of the subject regulation. A summary of the most pertinent federal statutes and their administering agencies proceeds below.

U.S. Environmental Protection Agency

The EPA, established in 1970 by Executive Order, administers numerous statutes pertaining to human health and the environment. The EPA regulates toxic air contaminants through its implementation of the CAA. Although the CAA covers the gamut of air pollutants, Section 112(r) specifically covers "extremely hazardous materials" which include acutely toxic, extremely flammable, and highly explosive substances. Although not strictly in the realm of air pollution, Section 112(r) (referred to as the EPA's Risk Management Program) requires facilities involved in the use or storage of extremely hazardous materials to implement a Risk Management Plan (RMP). A RMP requires a detailed analysis of potential accident factors present at a facility and requires the implementation of mitigation measures designed to reduce the identified accident potential.

The EPA also regulates the land disposal of hazardous materials through the Resource Conservation and Recovery Act (RCRA). Under RCRA, the EPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as "cradle-to-grave" regulation in order to assure proper accountability.

Occupational Safety and Health Administration

Through the enactment of the OSHA, they were obligated to prepare and enforce occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through promulgating regulations specifying workplace procedures and equipment.

U.S. Department of Transportation

The DOT regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

State

California Environmental Protection Agency (Cal/EPA)

The Cal/EPA was created in July 1991 to better coordinate state environmental programs, reduce administrative duplication, and address the greatest environmental and health risks. Cal/EPA unifies the state's environmental authority under a single agency. The Secretary for Environmental Protection oversees the following agencies: Air Resources Board, Integrated Waste Management Board, Department of Pesticide Regulation, SWRCB, DTSC, and Office of Environmental Health Hazard Assessment.

Cal/EPA Department of Toxic Substances Control (DTSC)

The DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the State Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Department of Health Services

The DHS has a Drinking Water Program that is responsible for maintaining scientific expertise and carrying out administrative functions of the program. The Drinking Water Program has a Technical Programs Branch, within which is the Unit that is responsible for developing water reclamation criteria and regulations, evaluating water reclamation projects, and making recommendations to the RWQCB regarding the public health implications of the projects.

California Occupational Safety and Health Administration (Cal/OSHA)

The Cal/OSHA and the federal OSHA are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. Pursuant to the Occupational Safety and Health Act of 1970, OSHA has adopted numerous regulations pertaining to worker safety, contained in the Code of Federal Regulations Title 29 (29 CFR). These regulations set standards for safe workplaces and work practices, including standards relating to hazardous material handling. Cal/OSHA assumes primary responsibility for developing and enforcing state workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the CCR, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985, often referred to as the Business Plan Act, requires facility operators to prepare Hazardous Materials Business Plans. Hazardous Materials Business Plans are required to inventory hazardous materials stored and used on site, disclose the location of storage and use on site, maintain an emergency response plan, and contain provisions specifying employee training in safety and emergency response procedures. Hazardous Materials Business Plans are collected by local regulatory authorities such as local Environmental Health Departments.

California Accidental Release Program (CalARP)

The recently passed CalARP requires certain facilities to prepare RMPs. The CalARP is similar to the CAA's Section 112(r). A facility handling hazardous materials listed in the CalARP and federal RMP regulations must comply with both statutes. The CalARP formally replaced California's old Risk Management Prevention Program (RMPP) in January 1997. Certain facilities before the implementation of the CalARP were required to comply with the RMPP regulation administered by the State Office of Emergency Services (OES). The majority of these facilities and certain future new facilities will be required to comply with both the federal RMP and CalARP regulations. These similar regulations require facility operators that handle an amount of a listed acutely hazardous material, explosive or flammable material, exceeding a threshold quantity to conduct additional planning studies covering equipment and safety systems, operating procedures, preventative maintenance, off-site consequence and risk assessment analysis, and safety auditing. OES delegates its enforcement authority to local administering agencies such as county Environmental Health Departments.

Hazardous Materials Transport

State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and Caltrans. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads.

Local

The Stanislaus County Environmental Resources Department, Hazardous Materials Division (SCHMD) provides the management and record keeping of hazardous materials and underground storage tanks for Stanislaus County, including the incorporated cities. The SCHMD is the Certified Unified Program Agency (CUPA) for all cities and unincorporated areas within those respective counties. The CUPA was created by the California Legislature to minimize the number of inspections and different fees for businesses. The CUPAs regulate the use, storage and disposal of hazardous materials by issuing permits, inspecting facilities, investigating complaints, and consulting with both the business community and the public. The CUPAs inspect businesses for compliance with the Hazardous Waste Control Act. Hazardous waste is subject to storage time limits, disposal requirements and labeling requirements on containers. The CUPAs also issues permits to businesses that handle quantities of hazardous materials/waste greater than or equal to 55 gallons, 500 pounds or 200 cubic feet of a compressed gas at any time. Businesses who handle those quantities of hazardous materials/wastes are required to submit a Hazardous Materials Management Plan (HMMP) to the CUPA. The HMMP includes an inventory of hazardous materials and hazardous wastes, as well as an emergency response to incidents involving those hazardous materials and wastes.

Under a contract with the SWRCB, the CUPAs conduct the Local Oversight Program to oversee the abatement and cleanup of releases of hazardous substances from UST in their counties that do not involve chemical releases to water. The California RWQCB is the lead agency for chemical releases to water throughout the County. The CUPAs typically prepare and implement County

Emergency Plans for emergency response to chemical spills in the community, and maintain a hazardous materials response team to assist police and fire agencies during transportation and industrial accidents involving chemical spills.

Facilities with aboveground storage tanks over 660 gallons, or 1,320 gallons combined, that contain petroleum products are inspected by the CUPAs and are required to have a Spill Prevention Control and Countermeasure Plan (SPCCP). The plan is kept on-site and is subject to inspection by the SWRCB. The Plan includes a requirement to prepare a response to a release of hazardous materials from above-ground storage tanks and to prevent a release. The SPCCP also identifies the requirement for secondary containment and mitigation measures.

Stanislaus County Plans and Policies

The *Stanislaus County General Plan* (1994) provides for hazardous materials management in Chapter 5, Safety Element. In a coordinated process between the cities and the County, a County Hazardous Waste Management Plan (CHWMP) was prepared pursuant to AB 2948 (Tanner, 1986). The CHWMP is intended to serve as the primary planning document for hazardous waste management in the County, and contains goals, policies and recommended programs for the management, recycling and disposal of hazardous wastes. The CHWMP governs the coordination and planning of hazardous waste disposal capacity between the County and state. The County General Plan provides for coordinated efforts to identify locations of hazardous materials and prepare and implement plans for management of hazardous spills through the County's adopted emergency plan.

Emergency Response Plans and Policies

The principal federal and state laws providing for disaster support are Public Law 93-288 (Federal Disaster Relief Act of 1974); California Emergency Services Act; California Disaster and Civil Defense Master Mutual Aid Agreement; California Natural Disaster Assistance Act; and other federal statutes. Administratively the State of California through the OES has prepared a State of California Emergency Plan. The OES coordinates overall state agency response to major disasters in support of local government. OES maintains the State Emergency Plan, which outlines the organizational structure for state management of the response to natural and manmade disasters. During major emergencies, OES may call upon all state agencies to help provide support, and OES activates the State Operations Center in Sacramento and the Regional Emergency Operations Centers in impacted areas to receive and process local requests for assistance. The OES and other state agency public information officer staff, the OES Emergency Management System, and the State Emergency Plan are responsible for incidents involving earthquakes, floods, fires, hazardous material, nuclear power plant emergencies, and dam breaks.

EXISTING CONDITIONS

In accordance with Section 21092.6 of the Public Resource Code, the Lead Agency (City of Turlock) is required to review lists complied pursuant to Section 65962.5 of the Government Code to determine whether the project would be constructed on sites determined to be hazardous.

To locate and identify exiting sites along the proposed alignment, a database search was conducted to compile a list of recorded sites. **Table 3.10-1** provides a summary of sites identified in the Environmental Data Resources, Inc (EDR) report (database search). The EDR report is available for public review the City's Municipal Utilities Department during normal business hours.

TABLE 3.10-1
KNOWN HAZARDOUS MATERIALS SITES

Type	Address	List
Small Quantity Generator	2201 S. Mitchell Road	RCRIS, FINDS
Inactive UST (1)	13227 Harding Road	CA FID, HIST UST
Inactive UST (1)	13557 Harding Road	CA FID, HIST UST
Inactive UST (1)	2401 S. Central	CA FID, HIST UST
Inactive UST (1)	3418 S. Mitchell Road	CA FID, HIST UST
Inactive UST (2)	14503 Harding Road	CA FID, HIST UST
Inactive UST (3)	13626 W. Harding Road	HIST UST
Active UST (2)	2407 S. Blaker	CA FID, UST
Active UST (1), Inactive UST (3)	15132 Harding Road	CA FID, HIST UST
Active UST (1), Inactive UST (4)	15371 Harding Road	CA FID, UST HIST
Active UST (1), Inactive UST (1)	15445 Harding Road	CA FID, UST HIST
Active UST (1), Inactive UST (1)	15811 Harding Road	CA FID, UST HIST
Inactive UST (5)	3312 S. Blaker Road	HIST UST
Active UST (1)	2601 S. Central	HIST UST
Inactive UST (1)	16379 W. Harding Road	HIST UST
Aqueous solution with < 10 % total organic residues	2613 S. Mitchell Road	HAZNET
Active UST (1), Inactive (1)	16804 E. Harding Road	CA FID, HIST UST
Active UST (1), Inactive UST (3)	14548 Harding Road	CA FID, HIST UST

UST Underground Storage Tank
CA FID Facility Inventory Database
FINDS Facility Index System
HIST UST Historical UST Registered Database

Source: Environmental Data Resources, Inc. 2003

The EDR report included a review of the former DHS Bond Expenditure Plan, the EPA National Priorities List (NPL), the EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), Cortese Hazardous Waste and Substances Sites (Cortese) and the Cal-EPA Active Annual Workplan Sites (Cal-Sites) lists. The EDR report also

included a review of lists provided under the EPA RCRA Generators, EPA Emergency Response Notification System (ERNS) and RCRA Treatment, Storage, and Disposal (TSD) facilities databases. No known contaminated municipal ground water wells, producing or abandoned California Division of Oil and Gas (CDOG) petroleum wells, EPA Superfund sites, or active or inactive landfills are listed adjacent to the proposed alignment. According to the database search, the project alignment would border several properties previously recorded for various soil and groundwater contaminations. As indicated in **Table 3.10-1**, the vast majority of these properties include active and inactive underground storage tanks (USTs).

In recognizing that the Proposed Project would exclusively be constructed within an existing roadway (Harding Road), the likelihood of encountering contamination is remote. In addition to the above-mentioned sites, minor amounts of hazardous substances, such as agricultural supplies, maintenance and landscaping supplies, and other un-recorded materials may be stored and used on properties adjacent to the project alignment. However, in instances where site records are available, the City will take a case-by-case approach to such sites, if encountered. Chemicals related to construction, such as petroleum products, may be stored and used during construction along various portions of the alignment. However, due to the small amounts of such materials, the risk of explosion or release of any of these substances is considered minimal.

3.10.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

For the purposes of this EIR, the following significance criteria are used:

- An impact would be considered significant if the project would involve the use, production, or disposal of materials that pose a hazard to people or to animal or plant populations in the area affected.
- An impact would be considered significant if the project would create a substantial potential public health or safety hazard due to risk of upset (accidents).
- An impact would be considered significant if the project would violate applicable laws intended to protect human health and safety or would expose employees to working situations that do not meet health standards.
- An impact would be considered significant if the project would interfere with emergency response plans or emergency evacuation plans.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact

3.10.1 Construction of the Proposed Project may expose construction workers, the general public, and the environment to pre-existing hazardous materials contamination. (Potentially Significant)

The Proposed Project will require extensive excavation and disturbance of surface soils up to depth of eight to nine feet along the proposed alignment. Past historic land uses may have resulted in the contamination of soil and/or groundwater. Construction activities inherent to the Proposed Project could encounter areas of unrecorded contamination associated with past land uses (e.g., farm waste). Dewatering of contaminated groundwater from trenches and excavations could expose individuals and the environment to hazardous levels of contaminants. Similarly, body contact with contaminated soil could lead to inadvertent exposure. This impact is considered potentially significant. Implementation of the prescribed mitigation would reduce the impact to a less-than-significant level.

Mitigation Measure

3.10.1a If contaminated soil and/or groundwater or suspected contamination were encountered during project construction, work shall be halted in the area, and the type and extent of the contamination shall be identified. The depth of trenches would be approximately eight to nine feet. A contingency plan to dispose of any contaminated soil or groundwater should be developed through consultation with the appropriate regulatory agencies. If dewatering were to occur during project construction, the RWQCB should be consulted for any special requirements such as containing the water until it can be sampled and analyzed to ensure that no contaminants are in the groundwater that could be released into the TID drainage system.

3.10.1b Implement Mitigation Measure 3.1.1b.

Significance After Mitigation

Less-than-significant.

Impact

3.10.2 During construction, there lies a risk of exposure to hazardous materials such as fuel and other chemicals used for pipeline excavation and construction activities. (Potentially Significant)

During excavation and construction activities, it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, and hydraulic fluid would be handled on the construction site. Various contractors for fueling and maintenance purposes could use temporary bulk aboveground storage tanks as well as storage sheds/trailers. The potential for an accidental release exists during handling and transfer from one container to another. Depending on the relative hazard of the hazardous material, if a significant spill were to occur, the accidental release could pose a hazard both to construction employees and the environment. Although typical construction management practices limit and often eliminate the impact of such accidental releases, there is a possibility of a spill or a release with the temporary on-site storage of hazardous materials. This impact is considered potentially significant. Implementation of the prescribed mitigation would reduce the impact to a less-than-significant level.

Mitigation Measure

3.10.2 The City shall ensure, through the enforcement of contractual obligations, that all contractors transport, store and handle construction-related hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the Department of Transportation, California RWQCB, the local fire departments, and the local environmental health department.

Recommendations shall include as appropriate transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using applicable federal, state and/or local regulatory agency protocols. In addition, all precautions required by the RWQCB issued NPDES construction activity stormwater permits would be taken to ensure that no hazardous materials enter any nearby waterways.

In the event of a spill, the City shall ensure, through the enforcement of contractual obligations, that all contractors immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. If required by the local fire departments, the local environmental health department, or any other regulatory agency, contaminated media shall be collected and disposed of at an off-site facility approved to accept such media.

Significance After Mitigation

Less-than-significant

Impact

3.10.3 The Proposed Project could interfere with an emergency response or evacuation plan. (Potentially Significant)

The Proposed Project is not expected to involve any activities that would interfere with emergency response plans or evacuation plans in place through the California OES and Stanislaus County. However, when installing the pipeline along roadways, the Proposed Project could block access to nearby roadways for emergency vehicles. (Potentially Significant)

Mitigation Measure

3.10.3 Implement Mitigation Measure 3.8.3a.

Significance After Mitigation

Less-than-significant.

3.11 AESTHETIC AND RECREATIONAL RESOURCES

This section describes the aesthetic character of the project area and provides applicable County policies relating to the maintenance of visual quality. Recreational resources (e.g., parks, bikeways, etc.) within the project area are described, along with related County General Plan polices. The impact analysis presents the standards used to evaluate impacts to visual quality and recreational resources and addresses potential effects of the Proposed Project on such resources.

3.11.1 SETTING

VISUAL CHARACTER OF THE PROJECT AREA

The Proposed Project includes a pipeline alignment that would run approximately 5.6 miles, a pump station and an outfall diffuser system. The project area is located west of the Turlock City limits and includes Harding Road (area immediately north and south of the Harding Drain) between Prairie Flower Road, and the east bank of the San Joaquin River.

The terrain of the area is generally flat, with the foothills of the Diablo Range rising to the southwest and the foothills of the Sierra Nevada rising to the east. The Coastal Ranges are visible from the valley floor; however, long-range visibility in the area is frequently limited by haze and particulate air quality contamination. The Sierra Nevada Mountains to the east are typically obscured or only dimly visible. The valley floor is comprised of cultivated row crops, orchards, scattered rows and/or clusters of eucalyptus and oak trees, irrigated pasture, vast canal systems, and urban centers situated along State Route 99.

The project area, located in the south-central portion of Stanislaus County, is characterized by varied agricultural land uses, pastures, scattered residences, and a general absence of prominent topographic features of visual interest. A few residential houses several trees, electrical towers and poles, dairy farms and a tallow plant are the dominant vertical elements in the area. These features are illustrated in **Figures 3.11-1** and **3.11-2**.

The riparian corridor along the San Joaquin River represents the dominant natural feature in the project area with numerous tree species lining the meandering river corridor as expanded on in Section 3.2, Biological Resources. The vast system of drainage and irrigation canals maintained by the TID also represents a significant landscape feature that adds to the region's sense of place.

PARK AND RECREATIONAL RESOURCES

The project area includes unincorporated portions of Stanislaus County. Area residents have access to a wide range of recreational opportunities and facilities including several park and fishing areas, bike paths, and recreational centers. The park system that exists today reflects the historical growth patterns of the project area and the trends for certain types of recreational facilities that have been popular as the local park system has developed. In Stanislaus County,

PHOTOGRAPH 1

View of the Harding Drain, facing north. Houses and vehicles visible in the background.

PHOTOGRAPH 2

View of Harding Road, facing west. A Fremont Cottonwood tree is seen on the north side and Harding Drain on the south side.

SOURCE: Environmental Science Associates, 2004

Figure 3.11-1
Site Photographs

PHOTOGRAPH 3

View of the Harding Drain, facing west.

PHOTOGRAPH 4

View of the Harding Drain, facing west. Buildings located on the north side (to the right).

SOURCE: Environmental Science Associates, 2004

Figure 3.11-2
Site Photographs

the demand for parks and other recreational facilities is projected to grow significantly in the next 15 years, with 85 percent of the growth expected to occur along the State Route 99 corridor (Stanislaus County Parks Master Plan, 1998).

The Stanislaus County Parks Master Plan reports that the existing parks system consists of 25 county parks that include five regional parks, eight fishing access points and eleven neighborhood parks that serve the unincorporated communities in the County. The Master Plan also identifies a need for a new regional park to serve the area encompassed by the communities of Turlock, Patterson, Crows Landing and Newman. The new park would likely be situated close to the San Joaquin River and be at least 250 acres in size, however, at the time of the preparation of this report, no specific site for the future park has been selected.

The project area consists of disturbed settings of low to moderate visual, recreational, and aesthetic value. For instance, the location of the outfall at the San Joaquin River consists of scattered litter, which in combination with odors generated by the nearby tallow plant act as an additional deterrent. Also there are several signs along the Harding Drain, including near the existing outfall, that prohibit swimming or fishing within the Drain. This indicates the low to moderate aesthetic beauty and recreational significance in the project area along Harding Road.

LOCAL BIKEWAYS

Bikeways are typically classified according to a standardized numerical system from I through III[1]. A review of available maps indicates that no designated bikeways traverse through the project area.

APPLICABLE PLANS AND POLICIES

STATE REGULATIONS

California Scenic Highway Program

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code. A list of California's scenic highways and map showing their locations may be obtained from Caltrans' Scenic Highway Coordinators. After review of the Cal Trans State Scenic Highway Website, portions of State Route 99 within the project area were not found to be currently or

[1] Class I bicycle facilities also known as bike paths. Class II facilities are more commonly known as bike lanes, and are designated by striping in paved roads or street rights-of-way. Bicyclists using these facilities share the roadway with cars. The bike lanes are clearly marked and distinguished as guideways for bicycles. Class III facilities are bike routes that share right-of-way with other vehicles but have no striping or recognizable designation other than signage.

proposed State Scenic Highways or Scenic County Roads.

LOCAL REGULATIONS

Stanislaus County has identified the following goals and policies in the Conservation Element of the General Plan (1994):

GOAL 1: Encourage the protection and preservation of natural and scenic areas throughout the County.

POLICY 1 Maintain the natural environment in areas dedicated as parks and open spaces.

POLICY 2 Assure compatibility between natural areas and development.

GOAL 4. Provide for the open-space recreational needs of the residents of the County.

POLICY 14 Provide for diverse recreational opportunities such as horseback riding trails, hiking trails, and bikeways.

POLICY 15 Coordinate the provision of recreation needs with other providers such as the ACOE, the State Resources Agency, school districts, river rafters, horse stable operators, and private organizations such as the Sierra Club and Audubon Society.

3.11.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Appendix G of the CEQA *Guidelines* indicates that significant effects on the visual character of the environment include substantial, demonstrable negative aesthetic effects, conflicts with adopted environmental plans and goals of the community, substantial degradation of scenic vistas or highways, and the creation of light or glare. Likewise, Appendix G indicates that a project would result in significant effects to recreational resources if it resulted in accelerated physical deterioration of an existing recreational facility or permanent and/or temporary disruptions to recreational activities.

Using the criteria above, this analysis evaluates the project's impact on the visual character of the area. The evaluation of potential impacts is based on the project's potential to change the visual character of the area by the following criteria:

- Obstruction of a scenic view from public viewing areas;
- Introduction of physical features that are substantially out of character with adjacent residential areas;
- Alteration of the site so that the scale or degree of change appears as a substantial, obvious, and disharmonious modification of the overall scene (to the extent that it clearly dominate the view);

- Creation of substantial daytime glare associated with new construction; or
- Disruption of adjacent residential areas from new night-time lighting.

Using the criteria above, the impact analysis evaluates the project's impact on local parks and recreational resources within the project area. An adverse impact to local park and recreation uses in the project area would occur if the project:

- Increases 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;
- Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment; or
- Result in permanent and/or temporary impacts, such as possible disruption of recreational activities, thereby affecting the recreational value of existing facilities.

METHODOLOGY

The analysis of impacts of the Proposed Project is based on the above significance criteria in the context of the project area. The approach used to analyze the impacts of the Proposed Project on aesthetics and recreation is to identify the changes in visual and other recreational resources expected to result from project implementation and, on the basis of significance criteria, to evaluate the significance of such changes when weighed against the environmental baseline. Expected changes were identified based on information presented in Chapter 2.0, Project Description, concerning the location of project facilities, including construction methods and procedures, project design and management. In assessing the effects of the project on visual resources, the sensitivity of an area to project-related disturbance and the type and duration of the disturbance are considered.

It is anticipated that the project would not create additional demand for recreation, thereby requiring the construction or expansion of recreational facilities. Construction associated with the project could temporarily disrupt access to nearby recreational facilities, however, no reduction in the current availability or value of recreational opportunities is anticipated.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact

3.11.1 The Proposed Project would modify the existing visual character of the project area. (Less-than-Significant)

In-street pipeline construction would progress at a rate of 700 to 1,000 feet per day with temporary roadway restoration occurring immediately and permanent pavement restoration occurring shortly after each pipeline segment is installed. To travelers and

existing residences along the pipeline routes, foreground views of construction would be dominant along pipeline segments as they are installed. These views would generally be of short duration, until construction equipment is moved onto the next segment and site restoration is completed. As the pipeline would be below-grade following construction, no significant effects to the visual character of the project area would occur.

As indicated in Chapter 2.0, the proposed pump station would be constructed at the southeastern corner of the intersection of Harding and Prairie Flower Roads. The visual setting of the immediate area consists of paved and dirt roadways along the Harding Drain and Prairie Flower Road, irrigated pasture, and a few rural residences. The pump station would be housed within an enclosed structure and its design would be in conformance with applicable Stanislaus County General Plan policies, so that it blends in with nearby structures. Conformance with applicable County policies would ensure a less-than-significant impact.

As described in Chapter 2.0, the proposed aeration facility located on the land-side of the eastern San Joaquin River levee would be approximately 12 to 20 feet tall, covering approximately 3,000 square feet. Given that open space uses dominate this section of the project area, the aeration facility could be out of character with adjacent open space areas thereby permanently modifying the overall scene of the project area. However, given that this area is characterized by low to moderate visual interest with the presence of an existing Tallow Plant to the north, changes to the existing visual character would be minimal. Further, as TID will be constructing several 40-foot transmission towers within the immediate area, impacts to the visual character or the project area, as attributed to the Proposed Project are considered less-than-significant.

Mitigation Measure

No mitigation is required.

Impact

3.11.2 The Proposed Project would involve the construction of structures that would result in the creation of new sources of daytime glare and/or nighttime illumination. (Potentially Significant)

The Proposed Project would include the installation of permanent lighting fixtures (e.g., security) for the proposed pump station and aeration facility. In addition, it is plausible that construction operations during evening hours could employ mobile lighting equipment that would generate limited nighttime illumination. However, due to the absence of significant aesthetic resources in the project area, no significant impacts are expected from such temporary lighting equipment. Additionally, mobile lighting equipment used as part of the Proposed Project would be directed towards the construction site and away from any residences, if utilized. Therefore, temporary impacts in terms of nighttime illumination for the alignment are considered less-than-significant.

However, as the proposed pump station and the aeration facility would require security lighting, these features would create a new permanent source of light or glare, which could adversely affect day or night time views in the area. This impact is considered potentially significant. The implementation of the prescribed mitigation would reduce this impact to a less-than-significant level.

Mitigation Measure

3.11.2 The City will install security lighting with directional shields to concentrate lighting toward the site. The night time security and associated parking lighting fixtures will be equipped with directional shields that aim light downward and away from adjacent residential properties. In addition, the placement of lighting fixtures would be selected to concentrate light on-site to avoid spillover onto adjacent residential properties.

Significance After Mitigation

Less-than-significant.

Impact

3.11.3 Impacts to scenic corridors and officially designated routes. (No Impact)

As previously indicated the project area does not include any vistas or roadways designated as scenic by the State or local General Plans. Construction of the proposed pipeline would not obstruct a public view, scenic vista, or significant feature, or create an aesthetically offensive public view. For this reason, the Proposed Project would have no impact on a scenic vista or roadway.

Mitigation Measure

No mitigation is required.

Impact

3.11.4 The Proposed Project would not result in an indirect increase in visitor 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)

The Proposed Project would result in the installation of the force and associated conveyance structures to enable direct discharge to the San Joaquin River. The project would not create additional job opportunities, aside from temporary construction jobs, and would not attract outside visitors to the project area. Additionally and as described further in Chapter 5.0, no increase in population would occur from the Proposed Project. For these reasons, the Proposed Project would not increase the use of existing parks or

other recreational facilities such that physical deterioration of the facility would occur or be accelerated. Consequently, no impact would occur.

Mitigation Measure

No mitigation is required.

Impact

3.11.5 The Proposed Project would not substantially disrupt or conflict with the use of existing recreational facilities to the extent that it would affect the recreational value of such facilities. This impact is considered less-than-significant.

Although not identified as a beneficial use for the Harding Drain, several individuals have been observed fishing near the confluence with the San Joaquin River. It is possible that fishing access to this portion of the Harding Drain may be temporarily disrupted during construction during the intersection of Carpenter Road and the Harding Drain. However, the duration of disruption would be minimal. Once construction is complete, its use for such purposes would not be precluded. No other recreational uses or facilities were observed within the project alignment. With this understanding, impacts to existing recreational facilities are considered less-than-significant.

Mitigation Measure

No mitigation is required.

CHAPTER 4.0

PROJECT ALTERNATIVES

CHAPTER 4.0

PROJECT ALTERNATIVES

4.1 GENERAL CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the project, or to the location of the project, that could feasibly attain most of the basic objectives of the project. Section 15126.6 of the CEQA Guidelines requires the lead agency to include alternatives that would avoid or substantially lessen any of the significant adverse effects of the Proposed Project, and to evaluate the comparative merits of the alternatives (CEQA Guidelines, Section 15126.6). This may include those alternatives that could, in some instance, be more costly, or otherwise impede to some degree the attainment of certain project objectives.

It is important to understand, however, that the mere inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact "feasible." The ultimate decision regarding the feasibility of alternatives lies with the ultimate decision maker for a project, which in this case is the City of Turlock City Council. Such determinations are to be made in statutorily mandated findings addressing potentially feasible means of reducing the severity of significant environmental effects. One finding that is permissible, if supported by substantial evidence, is that "specific economic, legal, social, technological, or other considerations … make infeasible the … alternatives identified" in the EIR. (Pub. Resources Code, § 21081, subd. (a); see also CEQA Guidelines, § 15901, subd. (a).) CEQA Guidelines section 15364 defines "feasible" to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." In deciding whether an alternative is feasible or infeasible, a decisionmaking body may consider the stated project objectives in an EIR, and may balance any relevant economic, environmental, social, and technological factors. (See *City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 410, 417; *Sequoyah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704, 715.)

4.2 FACTORS IN SELECTION OF ALTERNATIVES

The CEQA *Guidelines* recommend that an EIR should briefly describe the rationale for selecting the alternatives to be discussed, identify any alternatives that were considered by the lead agency but were rejected as infeasible, and briefly explain the reasons underlying the lead agency's determination [CEQA *Guidelines*, Section 15126.6(c)]. Section 4.2.1 of this Chapter discusses the selection of alternatives and includes a table listing all of the alternatives that were

considered. Alternatives addressed in this EIR were selected in consideration of one or more of the following factors:

- The extent to which the alternative would accomplish most of the basic goals and objectives of the project (See Chapter 2.0, Project Description);
- the extent to which the alternative would avoid or lessen one or more of the identified significant environmental effects of the project;
- the potential feasibility of the alternative, taking into account site suitability, economic viability, availability of infrastructure, General Plan consistency, and consistency with other applicable plans and regulatory limitations;
- the appropriateness of the alternative in contributing to a "reasonable range" of alternatives necessary to permit a reasoned choice; and
- the requirement of the CEQA Guidelines to consider a "no-project" alternative and to identify an "environmentally superior" alternative in addition to the no-project alternative [CEQA Guidelines, Section 15126.6(e)].

The significant environmental impacts that the alternatives will seek to eliminate or reduce include:

- Potential transportation and circulation impacts;
- Air quality impacts (construction-related);
- Impacts to biological resources;
- Potential land use conflicts;
- Conflicts with Williamson Act contracts and conversion of prime agricultural land;
- Noise and nuisance effects on adjacent residential communities;
- Impacts to existing potable water wells;
- Impacts to water quality; and
- Impact resulting from nighttime illumination.

4.3 ALTERNATIVES CONSIDERED, BUT ELIMINATED FROM FURTHER CONSIDERATION

Some alternatives were considered and eliminated, based upon their potential significant environmental impacts or inconsistency with the goals and objectives of the Proposed Project. These are summarized below.

Pipeline Alignments to the north of the Harding Drain. This alternative was considered but eliminated from further consideration for two primary reasons. First, the lack of direct routes (e.g. continual roadways) and upslope gradient rendered routes north of Harding Drain infeasible. Second, a downstream discharge would decrease flow in the San Joaquin River, and this decreased flow would pose the potential for impacts to fisheries and other instream uses and thereby increase the time and cost associated with the City's effort to move the point of discharge away from the Harding Drain.

As a result of these prior conclusions, this section includes a discussion of the No Project Alternative, as mandated by CEQA, and two alternative pipeline alignments (Alternatives 1 and 2). For each alternative alignment, a brief description of the route is provided along with a discussion of whether it would avoid or reduce significant environmental effects identified for the Proposed Project.

4.4 ALTERNATIVES ANALYSIS

4.4.1 ALTERNATIVE 1

The alignment under Alternative 1 would begin at the intersection of the Harding Drain and South Prairie Flower Road and traverse south along Prairie Flower Road to the intersection of Bradbury Road. At Bradbury Road, the alignment would traverse west to the intersection of Bradbury and Crows Landing Roads. From this point onward, Bradbury Road turns into a privately owned dirt road that continues to parallel TID Lateral No. 5 ½. The alignment continues west through privately owned land, crossing Carpenter Road, and eventually to eastern levee of the San Joaquin River where the outfall would be constructed. **Figure 4-1** provides an illustration of the alternative alignment.

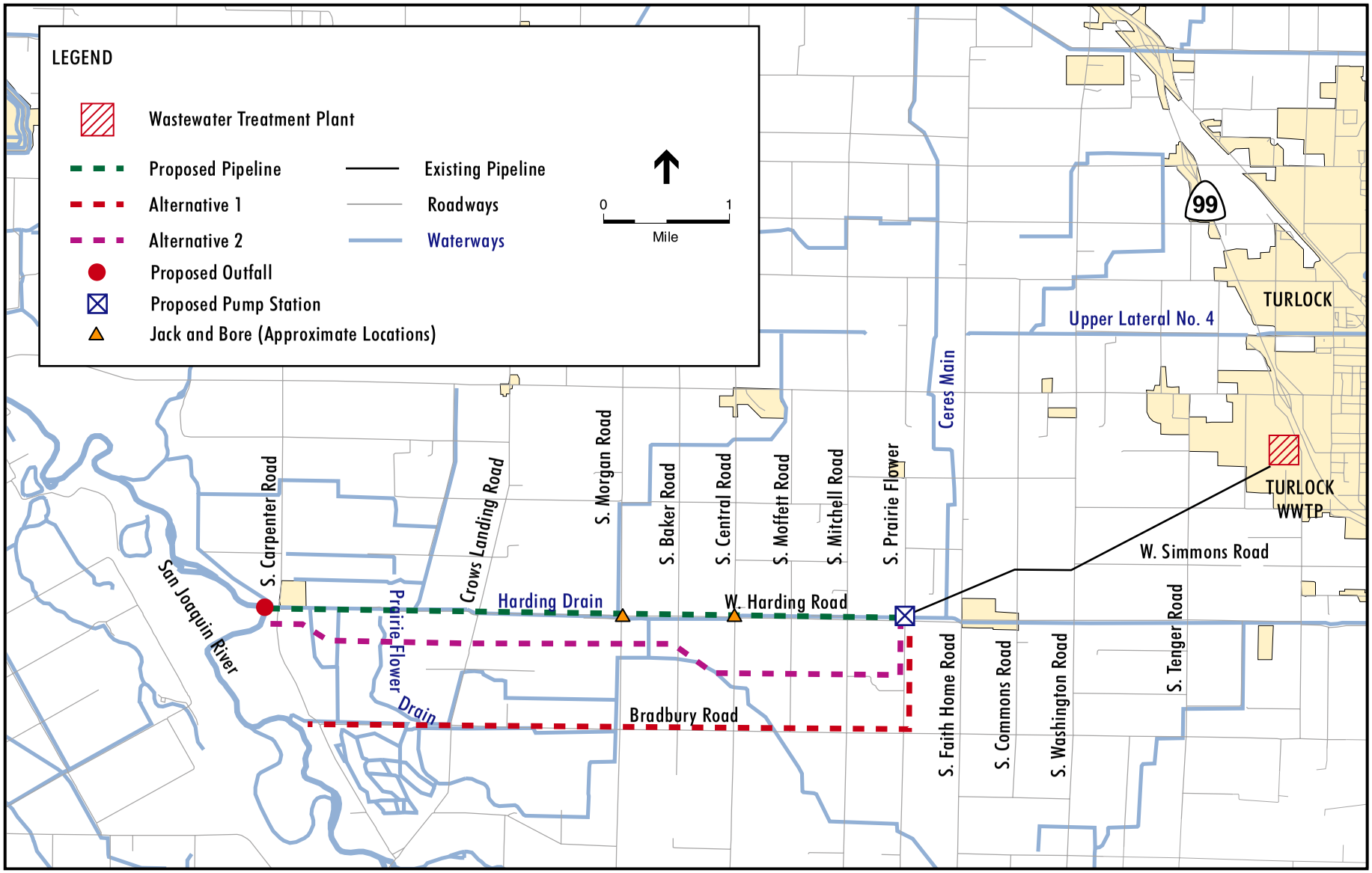
Unlike the proposed project, the pipeline under this alternative would be gravity feed with no pump station required at the intersection of Prairie Flower and Harding Road. The aeration structure and associated outfall would be similar in design as to the proposed project. A discussion of the environmental impacts of this alternative is presented as follows:

LAND USE AND AGRICULTURE

This alternative would essentially entail rerouting the pipeline within the project area and would, in general, be consistent with local plans and policies. In general, the alignment, as depicted in **Figure 4-1**, would be constructed along TID's Lateral No. 5 ½. Temporary land use conflicts identified for the Proposed Project would apply to this alternative. However, this alternative would likely affect fewer rural residents in comparison to the proposed route. Likewise, this alternative would avoid impacts to prime farmland and conflicts with Williamson Act contracted lands. Mitigation identified in Section 3.3, Land Use and Agriculture for the Proposed Project would also apply to this alternative.

TRANSPORTATION AND TRAFFIC CIRCULATION

In general, the alternative pipeline route would result in similar impacts to roadway systems and traffic patterns as the Proposed Project. However, Bradbury Road is commonly used as a thoroughfare, unlike Harding Road which is used as a general access road by local residents and possibly workers. Because Bradbury Road is used more frequently than Harding Road, there



SOURCE: Environmental Science Associates, 2004

Figure 4-1
Proposed Project and Alternatives

would likely be greater impacts to traffic circulation under this alternative in comparison to the Proposed Project. Mitigation measures to reduce impacts in terms of traffic circulation and safety would apply to this alternative and are identified in Section 3.8, Transportation and Traffic Circulation.

NOISE

The existing noise environment would be similar to the Proposed Project alignment; however, fewer residents would likely be affected by temporary construction noise. In addition, this alternative would not use include the use of noise-generating equipment (e.g., pump station) at the intersection of Prairie Flower and Harding Road as the pipeline would be gravity-fed. For this reason, noise impacts from construction would be lesser under this alternative as compared to the Proposed Project. However, mitigation measures identified for construction-related noise impacts would also apply to this alternative. Notwithstanding infrequent maintenance activities and the installation of a pump station at the aeration structure, operational noise impacts would be less under this alternative as compared to the Proposed Project.

AIR QUALITY

This alternative would result in similar impacts as the Proposed Project. Other, unidentified sensitive receptor locations would likely be impacted, as under the Proposed Project. In the case of this alternative, fewer individuals would likely be affected by construction-related emissions due to a greater density of residential dwelling units along the Harding Drain. Through compliance with Regulation VIII, Rule 8010, as identified in Section 3.6, Air Quality, construction-related air quality impacts resulting from this alternative would be similar to the Proposed Project and less-than-significant.

GEOLOGY, SOILS, AND SEISMICITY

Under this alternative, similar impacts with regards to seismic ground shaking hazards, expansive soils, and soil erosion would apply as in the case of the Proposed Project. However, under this alternative, the alignment would be not be constructed along the unlined Harding Drain, therefore, it would eliminate the hazard of slumping of the banks of the drain and eventually causing risk to the construction workers, Therefore, no additional mitigation measures would be required for this alternative, beyond mere compliance with standards for areas within UBC Seismic Hazard Zone 3 as provided in Chapter 2.0, Project Description.

WATER RESOURCES

Similar impacts as the Proposed Project would be expected on local drainage patterns, water quality and flooding hazards under this Alternative. The alignment under this alternative would not substantially reduce any of the impacts identified for the Proposed Project. Mitigation prescribed for the Proposed Project would still apply to this alternative. Therefore, impacts and associated mitigation would be similar to those identified for the Proposed Project.

BIOLOGICAL RESOURCES

This alignment would remain on existing roadways and/or ROWS, i.e., along Bradbury Road and generally not disturb any sensitive biological habitat. As with the Proposed Project, lands adjacent to the Harding Drain are generally characterized as disturbed and under agricultural cultivation or residential use with little or no habitat value. In recognition of the land use context and construction of the outfall at another location along the San Joaquin river, similar biological impacts would apply to this alternative as compared to the Proposed Project. Since no reduction in impacts on biological resources is anticipated, the mitigation prescribed for the Proposed Project would also apply to this alternative.

CULTURAL RESOURCES

This alternative would result in similar impacts as the proposed pipeline alignment. No previously identified or recorded cultural resources exist in this alternative alignment. However, construction along the alternative alignment may cause disparate levels of impacts to unidentified resources given the highly localized nature of archaeological resources. As a result, the mitigation measures outlined in the Proposed Project would also apply, which includes any field surveys that have yet to be conducted on a project-specific basis.

PUBLIC SERVICES AND UTILITIES

This alternative is expected to cause similar types and magnitudes of impacts as the Proposed Project in most instances. The difference, however, is the presence of a Pacific Gas and Electric (PG&E) operated 12-inch high pressure gas main housed within Bradbury Road. Construction activities may therefore, lead to temporary interruptions in the utility service. Underground connections would be identified and PG&E would be consulted prior to any excavation work to minimize the potential to disrupt any utility services. In addition, mitigation measures identified in Section 4.4 for the Proposed Project would still apply to this alternative.

HAZARDS AND HAZARDOUS MATERIALS

This alternative would result in similar impacts to the proposed pipeline alignment. Construction of this alternative pipeline alignment may expose construction workers, the general public, and the environment to pre-existing hazardous materials contamination.

This alternative would require the excavation and disturbance of soils. Past historic land use may have resulted in the contamination of soil and/or groundwater. Mitigation measures identified in Section 3.10, Hazards and Hazardous Materials, for the proposed pipeline alignment would also apply to this alternative.

AESTHETICS AND RECREATIONAL RESOURCES

This alternative would not include the installation of the pump station at Prairie Flower and Harding Road. As such, issues related to nighttime illumination at this location would be avoided under this alternative. However, this alternative would still include the construction of an aeration facility that would be comparable to the Proposed Project. As such, this alternative would realize slight reductions in impacts to aesthetic resources as compared to the Proposed Project. Similar to the Proposed Project, no County-designated recreational facilities are located along this alternative alignment. Construction of the outfall facility under this alternative would result in similar disruptions to fishing access along the San Joaquin river as compared to the Proposed Project.

4.4.2 ALTERNATIVE 2

Under this alternative, the pipeline would originate at the current discharge location, just north of the Harding Drain at Prairie Flower Road and travel south along the Prairie Flower Road ROW for approximately 1,600 feet. At this point, the alignment would travel due west through mainly irrigated pasture, dairy feeds lots, and rural residential lots. At the TID Lateral No. 5 ½, the alignment travels northwest along the northern side of the canal. After diverging away from TID's Lateral 5 ½, the pipeline would travel west crossing Crows Landing Road, Carpenter Road and the eastern San Joaquin River levee.

Structural components and construction methods would be similar under this alternative as compared to the Proposed Project, except that pipeline would be gravity-fed. As such, a pump station would not be required at the intersection of Prairie Flower and Harding Road. The location of the outfall system would be selected to provide effective mixing of the plant effluent with the San Joaquin River water. The river outfall system would also include a post aeration system, and an outfall diffuser system, similar to the proposed project. **Figure 4-1** provides an illustration of the alternative alignment.

A discussion of the environmental impacts of this alternative is presented as follows:

LAND USE AND AGRICULTURE

Alternative 2 would entail realigning the pipeline alignment to avoid impacts to local roadways. The alignment, as depicted in **Figure 4-1**, would be constructed almost entirely along private property lines and/or TID ROW. Land use conflicts identified for the Proposed Project would apply to this alternative, however, in most instances would be greater than the Proposed Project. This alternative would be less consistent with local plans and policies, since it would require construction work outside existing County rights-of-way and the acquisition of a permanent easement through eminent domain. Impacts to local agriculture would be greater in terms of disruptions to existing farming operations and greater losses in agricultural productivity. These impacts would likely be significant and unavoidable.

TRANSPORTATION AND TRAFFIC CIRCULATION

This alternative would, for the most part, avoid roadways. For this reason, impacts to the local roadway system and traffic patterns would be less under this alternative as compared to the Proposed Project. Mitigation measures identified in Section 3.8, Transportation and Traffic Circulation would likely still apply to this alternative.

NOISE

Under Alternative 2, the pipeline would be constructed along a different alignment. The existing noise environment would be similar, however, this alignment would likely affect more residences at a closer proximity. For this reason, construction noise impacts and their associated mitigation identified in Section 3.7 Noise for the Proposed Project would also apply to this alternative.

AIR QUALITY

Under this alternative, more individuals would likely be affected due to the greater density of residential dwelling units. All mitigation measures identified in Section 3.6, Air Quality, for the Proposed Project would apply to this alternative.

GEOLOGY, SOILS AND SEISMICITY

Alternative 2 would entail similar impacts with regards to seismic ground shaking and related hazards, expansive soils, and soil erosion as in the case of the Proposed Project. All impact discussions and associated mitigation measures identified in Section 3.9, Geology, Soils, and Seismicity for the Proposed Project would apply to this alternative.

WATER RESOURCES

While this alternative involves an alternate pipeline alignment, the types and quantity of facilities would be identical, with similar types and magnitudes of impacts to local drainage patterns, water quality, and flooding hazards. None of the modifications to the alignment under this alternative are expected to substantially reduce or increase the impacts identified for the Proposed Project. Therefore, impacts are anticipated to be similar to those identified for the Proposed Project.

BIOLOGICAL RESOURCES

This alternative would involve a cross-country route that would traverse mainly agricultural lands. Biological impacts resulting from the alternative would likely more significant due to higher occurrence of potentially sensitive aquatic and terrestrial habitat (open-cut canals, irrigation ditches, annual grassland, mixed salt brush, riparian, and riverine). Mitigation measures adopted for the Proposed Project would also apply to this alternative. Waters of the U.S. avoidance measures would be required under this alternative due to the increased number of canals likely crossed.

CULTURAL RESOURCES

This alternative would result in similar impacts as the proposed pipeline alignment. No previously identified or recorded cultural resources exist in this alternative alignment. However, construction along the alternative alignment may cause disparate levels of impacts to unidentified resources given the highly localized nature of archaeological resources. As a result, the mitigation measures outlined in the Proposed Project would also apply, which includes any field surveys that have yet to be conducted on a project-specific basis.

PUBLIC SERVICES AND UTILITIES

Under this alternative, the types and quantity of facilities would be identical to those in the Proposed Project, resulting in similar types and magnitudes of impacts. However, as indicated under the Traffic and Circulation section, this alignment would likely reduce impacts to the local circulation system as compared to the Proposed Project. This would likely result in less impacts to agency response times. However, mitigation measures identified for the Proposed Project would still apply to this alternative.

HAZARDS AND HAZARDOUS MATERIALS

This alternative would result in similar impacts as the proposed pipeline alignment. Construction of this alternative pipeline alignment may expose construction workers, the general public, and the environment to pre-existing hazardous materials contamination.

This alternative would require the excavation and disturbance of soils. Past historic land use may have resulted in the contamination of soil and/or groundwater. Mitigation measures identified in Section 3.10, Hazards and Hazardous Materials, for the proposed pipeline alignment would also apply to this alternative.

AESTHETICS RECREATIONAL RESOURCES

The visual character of the alternative alignments is almost identical to the Proposed Project. This alternative would result in similar visual impacts as the Proposed Project, expect for impacts associated with the installation of the pump station at the intersection of Harding and Prairie Flower Roads. All impact discussions identified in Section 3.11, Aesthetic and Recreational Resources, for the Proposed Project would apply to this alternative.

4.5 NO PROJECT ALTERNATIVE

Under the No Project Alternative, the proposed pipeline would not be constructed. The No Project Alternative would avoid construction impacts associated with the installation of the proposed pipeline. These impacts include land use conflicts, construction and operation related noise, potential erosion, adverse affects to local air quality, conversion of prime agricultural land, impacts to the visual character of the project area ands potential disruptions to traffic and

emergency service. Wastewater flows would continue to be discharged into the Harding Drain at the current rate of approximately 12 mgd and up to the rated capacity of the Drain and WWTP of 20 mgd in the future. As a result, disinfected tertiary treated recycled water would be discharged directly into the Harding Drain and eventually to the San Joaquin River. Drainage capacity within the Harding Drain would continue to be stressed during wet weather flows.

4.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 4-1 provides a summary of the evaluation of the alternatives compared to the Proposed Project. As shown in **Table 4-1**, the No Project Alternative would reduce many of the potential environmental effects associated Proposed Project, since it would essentially avoid adverse construction-related effects. However, it also fails to incur any of the beneficial impacts associated with the Proposed Project and associated alternatives and does not fulfill the objectives of the City. Other alternative alignments would, in many instances, result in greater impacts, in terms of land use conflicts, impacts to agriculture, disruptions to traffic circulation, and potentially interrupt natural gas service to several residents. For the above-mentioned reasons, the No Project is considered the environmentally superior alternative. However, of the action alternatives, the Proposed Project is considered the environmentally preferred alternative.

TABLE 4-1
COMPARISON MATRIX OF THE PROJECT ALTERNATIVES

	Alternative 1	Alternative 2	No Project Alternative
LAND USE AND AGRICULTURE			
Impact 3.3.1 – Plan Consistency	S	G	S
Impact 3.3.2 – Land Use Conflicts	G	G	L
Impact 3.3.3 – Displacement of Existing Facilities	S	G	L
Impact 3.3.4 – Impacts to Agricultural Operations	S	G	L
Impact 3.3.5 – Impacts to Important Farmlands	L	G	L
Impact 3.3.6 - Impacts to Williamson Act Lands	L	G	L
TRANSPORTATION AND TRAFFIC CIRCULATION			
Impact 3.8.1 – Impacts to travel lanes	G	L	L
Impact 3.8.2 – Impacts to local traffic flows	G	L	L
Impact 3.8.3 – Impacts to access of adjacent land uses	S	S	L
Impact 3.8.4 – Impacts to transit service	S	L	L
Impact 3.8.5 – Impacts to on-street parking	S	L	L
Impact 3.8.6 – Impacts to traffic safety hazards	G	L	L
Impact 3.8.7 – Impacts to roadway wear-and-tear	S	L	L
NOISE			
Impact 3.7.1 – Construction Noise	S	G	L
Impact 3.7.2 – Operational Noise	L	L	S
AIR QUALITY			
Impact 3.6.1 – Impacts from Construction Emissions	G	G	L
Impact 3.6.2 – Operational Impacts	S	S	S
Impact 3.6.3 – Odors	S	S	S

TABLE 4-1 (Continued)
COMPARISON MATRIX OF THE PROJECT ALTERNATIVES

	Alternative 1	Alternative 2	No Project Alternative
GEOLOGY, SOILS, AND SEISMICITY			
Impact 3.9.1 – Seismicity	S	S	L
Impact 3.9.2 – Expansive Soils	S	S	L
Impact 3.9.3 – Geologic Hazards	L	S	L
Impact 3.9.4 – Surface Soil Erosion	L	S	L
WATER RESOURCES			
Impact 3.1.1 – Water Quality from Construction	S	S	L
Impact 3.1.2 – Reduced Flow to the Harding Drain	S	S	L
Impact 3.1.3 – Water Quality of the Harding Drain	S	S	L
Impact 3.1.4 – Water Quality from Drainage	S	S	S
Impact 3.1.5 – Increase Discharge to San Joaquin River	S	S	G
Impact 3.1.6 – Water Quality from Pipeline Leaks or Overflows	S	S	L
Impact 3.1.7 – Groundwater Quantity	S	S	S
Impact 3.1.8 – Impacts to Existing Drainage Patterns	S	S	S
Impact 3.1.9 – Flooding	S	S	S
Impact 3.1.10 – Seiche, Tsunami, or Mudflow	S	S	S
BIOLOGICAL RESOURCES			
Impact 3.2.1 – Listed Terrestrial Species	S	G	L
Impact 3.2.2 – Impact on Bird Species	S	S	L
CULTURAL RESOURCES			
Impact 3.5.1 – Historical/Archaeological Resources	S	S	L
Impact 3.5.2 – Paleontological	S	S	L
Impact 3.5.3 – Human Remains	S	S	L
PUBLIC SERVICES AND UTILITIES			
Impact 3.4.1 – Impact to Response Times	L	L	L
Impact 3.4.2 – RWQCB Wastewater Treatment Requirements	S	S	S
Impact 3.4.3 – Construction of new drainage facilities	S	S	S
Impact 3.4.4 – Water Demand and Supply	S	S	S
Impact 3.4.5 – Landfill capacity	S	S	L
Impact 3.4.6 – Regulations regarding solid waste	S	S	L
Impact 3.4.7 – Impacts to Underground Utilities	G	S	L
HAZARDS AND HAZARDOUS MATERIALS			
Impact 3.10.1 – Exposure to pre-existing contamination during construction	S	S	L
Impact 3.10.2 – Exposure to construction-related hazardous materials	S	S	L
Impact 3.10.3 – Emergency access during construction	S	S	L
AESTHETICS AND RECREATIONAL RESOURCES			
Impact 3.11.1 – Impacts to Visual Character of the Project Area	S	S	L
Impact 3.11.2 – Impacts from Glare and Nighttime Illumination	L	L	L
Impact 3.11.3 – Impacts to Scenic Vistas and Corridors	S	S	S
Impact 3.11.4 – Impacts to Recreational Facilities	S	S	L
Impact 3.11.5 – Other Impacts to Recreation	S	S	L

L = Lesser impact than the Proposed Project
S = Similar impact as the Proposed Project
U = Unknown
G = Greater impact than the Proposed Project
SOURCE: ESA 2004

CHAPTER 5.0

GROWTH-INDUCING IMPACTS

CHAPTER 5.0

GROWTH INDUCING IMPACTS

5.1 INTRODUCTION

Section 15126.2(d) of the State CEQA Guidelines requires an evaluation of the growth inducing impacts of a proposed project. A growth inducing impact is defined by the CEQA Guidelines as:

> *The way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth. Increases in the population may tax existing community service facilities that could cause significant environmental effects. In addition, the characteristics of some projects may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It is not assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

The Proposed Project does not involve any increase to the City's existing permitted treatment capacity, provide any additional water supply, or otherwise remove an obstacle to growth or facilitate other activities that could significantly affect the environment. The focal point of the Proposed Project is to relieve current permitting obligations within the Harding Drain (TID Lateral No. 5). As previously indicated, numerous other unregulated discharges including, tailwater from row and orchard crops, flows from subsurface drains, TID operational spill water, and dairy runoff contribute to the drain's deteriorated water quality. Since much of the drain flows outside the City limits, the City currently has no jurisdictional authority to regulate these sources.

Given the City's main objectives, as outlined in Chapter 2.0, the basic elements of the project would not stimulate any new growth from what is already planned for under the City's General Plan. As mentioned in the Chapter 2.0, Project Description, the Proposed Project would involve the construction of a pipeline and associated outfall designed to accommodate a peak flow of 35 mgd[1]. However, implementation of the Proposed Project would not entail the construction of any additional treatment capacity at the City's existing WWTP beyond its permitted 20 mgd. As a result, no net increase in capacity would be developed at the WWTP and growth within the City would continue in accordance with the City's existing land use diagram and adopted growth and development control policies.

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[1] Peak flow refers to design capacity of the WWTP and its ability to provide sufficient levels of treatment for all combined wet and dry weather flows.

Overall, implementation of the project would not alter the location or amount of growth and development as anticipated under the City of Turlock General Plan. The Proposed Project would help the City in its ability to comply with future water quality standards, as established by the Regional Board, consistent with Policies 4.3-b and 4.3-d of the Turlock General Plan. For the above-mentioned reasons, the Proposed Project would not remove any existing obstacles, in terms of sanitary sewer treatment capacity, to current or projected population growth. Furthermore, the Proposed Project would not encourage nor facilitate other activities that could significantly affect the environment, either individually or cumulatively. Consequently, the Proposed Project would not facilitate additional population growth beyond the City's adopted General Plan and General Plan EIR and is therefore not considered growth inducing.

CHAPTER 6.0

CUMULATIVE IMPACTS AND OTHER STATUTORY CONSIDERATIONS

CHAPTER 6.0

CUMULATIVE IMPACTS AND OTHER STATUTORY CONSIDERATIONS

6.1 INTRODUCTION

This chapter discusses cumulative impacts and significant unavoidable adverse impacts associated with the Proposed Project. Cumulative impacts are defined as the incremental impacts of a Proposed Project when added to the impacts of other closely related past, present, and reasonably foreseeable future projects (CEQA Guidelines Section 15355). Significant unavoidable adverse impacts are those significant effects to the environment that cannot be avoided or substantially lessened.

6.2 CUMULATIVE IMPACTS

The State CEQA Guidelines (Section 15130) require a reasonable analysis of the significant cumulative impacts of a Proposed Project or program. As permitted by Section 15130 (b) (1) (b) of the CEQA Guidelines, cumulative impacts are based on growth projections and associated public service improvement projects contained in an adopted general plan or related planning documents. Environmental effects identified in prior certified environmental documents also described and/or evaluate regional or area-wide conditions contributing to the cumulative impacts. In general, cumulative impacts are assessed in this EIR using the projections approach. This approach was considerable most appropriate, since construction of the Proposed Project would exclusively occur within rural unincorporated portions of the County. For this EIR, the County of Stanislaus General Plan Background Report (1994), General Plan EIR, and Stanislaus County Council of Governments (STANCOG) Regional Transportation Plan and EIR were utilized to assess reasonably foreseeable cumulative effects. These documents are available for review at the City's Planning Department during normal business hours

6.2.1 CUMULATIVE PROJECTIONS

Since 1970, Stanislaus County's population has experienced a growth rate of 12 to 18% every five years (Stanislaus County, 1994a). Current trends in growth in the County are expected to increase to nearly 60% between 2000 and 2020 (California Department of Finance, 2001). Most of this growth has been focused toward the incorporated cities of Modesto and Turlock along with the other urban centers along the State Route 99 corridor. With the projected increase in population, the demand for necessary infrastructure (e.g., roads improvements, utilities, etc.) to support these cities has become ever more crucial.

Notwithstanding the anticipated growth, Stanislaus County is still principally an agricultural region, which produces and specializes in a number of commodities with nearly 75% of the County's land devoted to agricultural production (Stanislaus County, 1994a). The Proposed Project would be constructed near the rural south-central edge of the County where the circulation system resembles an east-west and north-south oriented grid bordered by the San Joaquin River to the west. Given the predominant agricultural land usage in the immediate project area, average daily traffic (ADT) volumes are generally lower than compared to urban roadways; however, truck traffic generally accounts for a higher percentage of the ADT. Given that the vast majority of impacts associated with the Proposed Project are construction-related, other roadway improvements and/or widening projects in conjunction with other utility installation projects are considered the most likely to incrementally add to cumulative effects in the project area.

Based on projections provided in the Stanislaus County General Plan and Regional Transportation Plan, the cumulative impact analysis places emphasis on roadways that currently or are projected to experience an ADT in excess of capacity standards, thereby necessitating widening and/or rehabilitation. It also assumes a higher frequency of road maintenance, due to the larger percentages of truck traffic. These forms of improvements are considered the most likely to coincide with construction of the Proposed Project. Based on information provided in the Stansilaus County General Plan and Regional Transportation Plan, the following improvements are considered reasonably foreseeable future projects.

- Local Road Maintenance Countywide;
- West Main Avenue. Widen to four lanes from SR 99 (Turlock City Limits) to City of Patterson;
- Carpenter Road. Reconstruct from Crows Landing Road to Whitmore Avenue.
- Crows Landing Road. Expand to four lanes between Grayson Road and Whitmore Avenue.

In addition, to the above-referenced improvements, two other large infrastructure projects are planned in the project vicinity. The first includes the construction of a high-voltage transmission line form the TID Walnut Substation to the City of Patterson. This project would be constructed along Harding Road parallel to the Proposed Project. Secondly, the City of Ceres is planning to construct a wastewater exportation pipeline from the City of Ceres to Turlock's WWTP. This project would be constructed to the north of West Main Street and east of Washington Avenue.

6.2.2 TYPES OF CUMULATIVE EFFECTS

As discussed in previous sections of Chapter 3.0, a majority of the significant environmental affects associated with the proposed project are related to facility construction. Therefore, the analysis of cumulative effects in this section focuses on potentially concurrent construction projects, as described above, and not on the operation of other potential nearby facilities under normal conditions. This analysis addresses reasonably foreseeable projects that could have

cumulative construction effects in combination with construction of the Proposed Project. The following section evaluates the potential for the proposed project to contribute significantly to cumulative impacts in terms of land use/agriculture, transportation/circulation, noise, air quality, geology and soils, hydrology and water quality, biological resources, cultural resources, visual resources, public services and utilities, and hazardous materials/public health. Where no cumulative impact is identified, this fact is acknowledged. The cumulative impacts for each of these resource topics are described below.

WATER RESOURCES

Due to the potential for construction of other projects in the vicinity of, and within a similar timeframe as, the Proposed Project, construction-related impacts to water quality, as identified in Section 3.1, could be cumulatively significant. However, implementation of the prescribed mitigation, in conjunction with project-prescribed best management practices would reduce these cumulative impacts to a less-than-significant level. Other projects in the immediate vicinity would also be required to implement Stormwater Pollution Prevention Plans, similar to the Proposed Project. These required measures would ensure that impacts to surface and groundwater quality are not cumulatively considerable.

Based on water quality data for the Harding Drain (see **Appendix D**), the proposed removal of the City's discharge would not contribute to any significant cumulative water quality impacts within the drain. Likewise, in recognition of the tertiary-treatment upgrades to the City's WWTP, the discharge of the City's effluent directly to the San Joaquin River would not result in any significant cumulative water quality impacts to the San Joaquin River. No cumulative impacts were identified related to the alternation of existing drainage patterns, flood hazards, or hazards associated with a seiche, tsunami, or mudflow.

LAND USE AND AGRICULTURE

The Proposed Project could result in short-term impacts to local agricultural operations and rural residences during construction. Other construction projects occurring within the same area could compound such impacts. Other land use conflicts resulting from construction could also be compounded by other roadway improvement projects and the like. However, through the implementation of mitigation provided in Sections 3.3 and 3.8, these impacts would not be cumulatively considerable. As indicated in Section 3.3, Land Use and Agriculture the project would result in the conversion of less than one acre of Farmland of Statewide Importance. Based on the evaluation of the County's principles of compatibility as provided in Section 4.3, the removal of one acre from Williamson Act Contract No. 0913 would not be cumulative considerable. In the overall context of farmland conversion within Stanislaus County, the project's incremental contribution is not considered cumulatively significant.

NOISE

With implementation of measures proposed as part of the project and mitigation prescribed in Section 3.7, temporary increases in ambient noise levels during installation of the Proposed Project facilities would not be cumulatively considerable given the short-term nature of the impacts. Over the long term, the noise impact from the Proposed Project would be negligible and not cumulatively considerable, given that it would include very infrequent motor vehicle trips associated with maintenance activities.

PUBLIC SERVICES AND UTILITIES

Through the early identification (e.g., hand-excavated test pits) of other underground utilities prior to the commencement of excavation work, and acquisition of approvals from service providers for any necessary shutdowns, potentially significant cumulative effects would be reduced to a less than significant level. Notification requirements outlined in Section 4.4 would ensure that impacts to public service providers are not cumulatively considerable.

BIOLOGICAL RESOURCES

Biological resources, particularly threatened, endangered, candidate, and other listed species, would not be cumulatively affected by the proposed project. The state and federal governments, through CDFG, ACOE, San Francisco Bay / Conservation and Development Commission (BCDC), USFWS, and NOAA Fisheries (formerly the National Marine Fisheries Service [NMFS]), have promulgated a regulatory scheme that limits impacts on these species. The effects of the project are rendered less than significant due to mitigation requiring compliance with all applicable regulations that protect plant, fish, and animals species. The mitigation measures imposed and the provisions required by law (e.g., pre-construction surveys and resource staking, presence of an environmental monitor, contractor training would ensure that impacts to biological resources are not cumulatively considerable.

AIR QUALITY

Compliance with SJVAPCD Regulation VIII, Rule 8010, as outlined in Section 3.6, Air Quality, would ensure that the temporary increase in criteria air pollutants from fugitive dust sources (e.g., earthmoving activities) and operation of construction equipment would not be cumulatively considerable. Operation of the project would generate very minimal long-term air emissions and therefore is not cumulatively significant. For these reasons, the proposed project would not result in cumulatively considerable air quality impacts.

CULTURAL RESOURCES

Proposed excavation and resulting ground disturbances, individually and cumulatively, are not anticipated to affect any previously identified prehistoric or historic resources in the region under study. Moreover, avoidance of such resources through the implementation of the prescribed

mitigation measures is expected to reduce construction-related impacts to less-than-significant levels. Therefore, the cumulative effect of the anticipated impacts on known and potential archaeological sites would also not be significant.

GEOLOGY, SOILS, AND SEISMICITY

The Proposed Project consists of the installation of sanitary sewer infrastructure through trenching and excavation methods, as outlined in Chapter 2.0. The project would not expose persons to substantial risk of loss, injury, or death relative to seismic and geologic hazards; result in substantial soil erosion; potentially result in landslides or other mass movements; or create substantial risks due to expansive soils. For these reasons, the contribution of the project to cumulative impacts would be less than considerable.

TRANSPORTATION AND CIRCULATION

Cumulative construction-related traffic impacts would depend on the timing of other individual projects within coinciding locations. The project would not result in any increase in vehicular traffic beyond the temporary increases described in Section 3.8. Construction operations associated with the installation of project-related facilities would result in temporary obstruction to traffic flow and possibly emergency access. However, through the implementation of the prescribed traffic mitigation, this impact would be reduced to a less-than-significant level and is therefore not cumulatively considerable.

HAZARDS AND HAZARDOUS MATERIALS

Activities related to the construction of the proposed facilities are not expected to make a cumulatively considerable contribution toward hazards or hazardous materials impacts. Contaminated soils or other materials may be unexpectedly encountered during excavation and would require appropriate handling and disposal by a licensed contractor. The characteristics and the volume of hazardous materials that could unexpectedly be encountered during construction cannot be determined in advance.

Some materials encountered during construction may be recyclable, which would reduce any possible impact on hazardous waste disposal/landfill capacity to a less-than-significant level. The cumulative impact of disposal of contaminated materials unexpectedly encountered during construction is considered a less-than-significant impact because of regulatory safeguards that limit exposure and require controlled handling and disposal.

AESTHETICS AND RECREATION

Upon completion, the Proposed Project would not result in a cumulative deterioration in local aesthetic resources. Except for the proposed pump station and aeration facility, components of the Proposed Project would be installed underground following completion of construction. The project's contribution to cumulative impacts on visual quality during construction would not be

significant due to the relatively short duration of the construction at each respective location. For these reasons, the proposed project would not have a cumulatively considerable deterioration in the visual quality of the project area.

The project would have no long-term or cumulative impacts on recreational facilities or resources.

6.3 IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126(c) of the State CEQA Guidelines requires an EIR to include a discussion of significant irreversible environmental changes that would result from implementation of a project. Implementation of the Proposed Project would result in the commitment of nonrenewable natural resources used in construction (such as gravel, petroleum products, and others) and slowly renewable resources, such as wood products for project construction. Operation of the Proposed Project, namely the pump station, would result in the commitment of energy resources in the form of fossil fuels, including fuel oil, natural gas, and gasoline for automobiles, and facility utility services.

6.4 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

Section 15093 of the CEQA Guidelines allows the decision-making body of the lead agency to determine if the benefits of a Proposed Project outweigh the unavoidable adverse environmental impacts of implementing the project. If the City chooses to approve the project with unavoidable adverse impacts, it must prepare a "Statement of Overriding Considerations" setting forth the specific reasons for making such a judgment. A list of unavoidable adverse impacts identified in this EIR is provided below. In addition to certifying the final EIR, the City is required to adopt Findings and prepare a Statement of Overriding Consideration for unavoidable impacts associated with the project. As indicated in the environmental analysis provided in Chapter 3.0, the Proposed Project would result in the following significant and unavoidable impact on the environment:

Impact

3.3.6 Implementation of the Proposed Project would conflict with an existing Williamson Act contract. (Significant)

Construction of the Proposed Project pipeline would be located primarily within existing roadway ROW with the exception of a small section of agricultural land along the alignment adjacent to the San Joaquin River. This would require a temporary construction easement and a permanent easement. No existing Williamson Act Contracts are on file for areas borders the San Joaquin River in the vicinity of the project.

Construction of the proposed pump station would occur on land currently protected by Williamson Act Contract No. 0913. Although it is likely that the proposed force main

may border various parcels currently under Williamson Act contracts, the installation of the underground pipeline along the periphery of agricultural lands would not have a substantial effect on productivity of the land and would not require contract cancellation. For instances where the proposed project would affect contracted lands, such as the pump station site, the Williamson Act has specific provisions for acquisition of contracted land for public improvements. Article 6 of the Williamson Act (Government Code Sections 51290-51295) provides that a public entity may acquire land within an agricultural preserve for a public improvement through eminent domain or in lieu of eminent domain, and that this action terminates the contract. Specific provisions define procedures that the agency must follow in notifying the Director of the California Department of Conservation (CDC), conditions under which a public improvement may not be located within a preserve, and public improvements, which are exempt from these conditions. A summary of the relevant provisions is provided below:

1. Notification Provisions. At the time a public agency is considering locating a public improvement within an agricultural preserve, notice must be sent to the Director of the CDC and the local governing body responsible for administration of the contract. The notification must include the total number of Williamson Act acres to be acquired and whether or not they include Prime Farmland; the purpose of the acquisition and why the parcel was selected; the location; characteristics of adjacent land; location maps; copies of the contract; and an explanation of the findings (see below).

2. Findings. A public agency shall not locate a public improvement within an agricultural preserve unless the following findings are made:

   - The location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve; and

   - If the land is Prime Farmland covered under a contract pursuant to Article 6 for any public improvement, that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement.

The City would follow the provisions of Article 6 of Government Code Sections 51290-51295, but this would not mitigate the loss of land in agricultural preserves. The proposed alignment would affect a very small percentage of the current agricultural land base within Stanislaus County. Compliance with the above-mentioned notification process would partially mitigate any impacts to these lands. However, the proposed project would still conflict with lands under exiting Williamson Act contracts as specified under the significance criteria.

Mitigation Measure

No mitigation is available to less the identified impact.

Significance After Mitigation

Significant and Unavoidable.

Impact

3.11.1 The Proposed Project would adversely affect the visual character of the project area. (Potentially Significant)

In-street pipeline construction would progress at a rate of 700 to 1,000 feet per day with temporary roadway restoration occurring immediately and permanent pavement restoration occurring shortly after each pipeline segment is installed. To travelers and existing residences along the pipeline routes, foreground views of construction would be dominant along pipeline segments as they are installed. These views would generally be of short duration, until construction equipment is moved onto the next segment and site restoration is completed. As the pipeline would be below-grade following construction, no significant effects to the visual character of the project area would occur.

As indicated in Chapter 2.0, the proposed pump station would be constructed at the southeastern corner of the intersection of Harding and Prairie Flower Roads. The visual setting of the immediate area consists of paved and dirt roadways along the Harding Drain and Prairie Flower Road, irrigated pasture, and a few rural residences. The pump station would be housed within an enclosed structure and its design would be in conformance with applicable Stanislaus County General Plan policies, so that it blends in with nearby structures. Conformance with applicable County policies would ensure a less-than-significant impact.

As described in Chapter 2.0, the proposed aeration facility located on the land-side of the eastern San Joaquin River levee would be approximately 12 to 20 feet tall, covering approximately 3,000 square feet. Given that open space uses dominate this section of the project area, the aeration facility could be out of character with adjacent open space areas thereby permanently modifying the overall scene of the project area. In light of this circumstance, this impact is considered significant.

Mitigation Measure

Beyond compliance with Stanislaus County's design and setback requirements for the public uses within the Open Space zone, no mitigation is available.

Significance After Mitigation

Significant and Unavoidable.

6.5 EFFECTS NOT FOUND TO BE SIGNIFICANT

As required by CEQA, this Draft EIR focuses on expected significant or potentially significant environmental effects (*CEQA Guidelines Section* 15143). Although an Initial Study was not prepared for the Proposed Project informal meetings with the City of Turlock and comments

received on the Notice of Preparation (**Appendix A**) helped identify and refine the list of environmental issues to be evaluated in this EIR.

A summary of resource-specific issues that were eliminated from detailed analysis in this EIR is provided throughout this EIR. Some of the impacts analyzed in this EIR are considered to be less than significant, requiring no mitigation. Other impacts, (i.e., those which are considered to be either significant or potentially significant) can be reduced to a level that is less than significant with the implementation of the proposed mitigation measures.

All of the impacts analyzed in this EIR, including those considered to be less-than-significant, are summarized in **Table ES-1** in the **Executive Summary**.

CHAPTER 7.0

EIR LIST OF PREPARERS

CHAPTER 7.0

EIR LIST OF PREPARERS

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CHAPTER 8.0

BIBLIOGRAPHY

CHAPTER 8.0

BIBLIOGRAPHY

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CHAPTER 9.0

ACRONYMS

SECTION 9.0

ACRONYMS

29 CFR	Code of Federal Regulations Title 29
ACOE	U.S. Army Corps of Engineers
af	acre-feet
APE	Area of Potential Effect
AQAP	Air Quality Attainment Plan
BA	Biological Assessment
Basin	San Joaquin River Basin
Basin Plan	Water Quality Control Plan
BCDC	San Francisco Bay / Conservation and Development Commission
bgs	below ground surface
BMPs	Best Management Practices
BO	Biological Opinion
Board	State Reclamation Board
BOD	biochemical oxygen demand
Cal/EPA	*California Environmental Protection Agency*
Cal/OSHA	California Occupational Safety and Health Administration
CalARP	California Accidental Release Program
CARB	California Air Resources Board
CCA	Clean Air Act
CCR	Code of Regulations
CCTS	Central California Taxonomic System
CDFG	California Department of Fish and Game
CDOG	California Division of Oil and Gas
CEQA	California Environmental Quality Act
CERCLIS	Compensation and Liability Information System
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CHWMP	County Hazardous Waste Management Plan

CIP	Capital Improvement Project
City	City of Turlock
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
Commission	State Lands Commission
Cortese	Cortese Hazardous Waste and Substances Sites list
CPSC	Consumer Product Safety Commission
CRCV	Coast Range-Central Valley
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
Delta	Sacramento-San Joaquin River Delta
DHS	California Department of Health Service
DOT	U.S. Department of Transportation
DTSC	Cal/EPA Department of Toxic Substances Control
DWR	California Department of Water Resource
EDR	Environmental Data Resources, Inc
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	*Environmental Science Associates*
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FIRM	Flood Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FMP	Fisheries Management Plan
GAMAQI	*Guide for Assessing and Mitigating Air Quality Impacts*
HMMP	Hazardous Materials Management Plan
HRA	Health Risk Assessment
Hz	hertz

Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MCE	maximum credible earthquakes
mgd	million gallons per day
MID	Modesto Irrigation District
MM	Modified Mercalli
MRZs	Mineral Resource Zones
MSDS	Material Safety Data Sheet
msl	mean sea level
Mw	magnitudes
N_20	Nitrous Oxide
NACO	National Association of Counties
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Service
NOP	notice of preparation
NO_X	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resource Conservation Service's
NRHP	National Register of Historic Places
NWPs	Nationwide permits
OES	State Office of Emergency Services
Order	Cease and Desist Order
OSHA	Occupational Safety and Health Administration
PAN	peracylacetylnitrates
PG&E	Pacific Gas & Electric
PM-10	respirable particulate matter
Proposed Project	proposed sanitary sewer pipeline and outfall
RCRA	Resource Conservation and Recovery Act
RLA	revocable license agreements
RMP	Risk Management Plan
RMPP	Risk Management Prevention Program
ROG	Reactive Organic Gases
ROW	rights-of-way
RWQCB	Central Valley Regional Quality Control Board

SAA	Streambed Alteration Agreement
SCHMD	Stanislaus County Environmental Resources Department, Hazardous Materials Division
SHPO	State Historic Preservation Officer
SIPs	State Implementation Plans
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SPCCP	Spill Prevention Control and Countermeasure Plan
SR 99	State Route 99
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic Air Contaminants
TCMs	Transportation Control Measures
TID	Turlock Irrigation District
TMDL	total maximum daily load
TSD	Treatment, Storage, and Disposal
TSS	total suspended solids
UBC	Uniform Building Code
UBC	Uniform Building Code
USA	underground services alert
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tanks
Valley	San Joaquin Valley
WWTP	Wastewater Treatment Plant

APPENDIX A

NOTICE OF PREPARATION

NOTICE OF PREPARATION

ENVIRONMENTAL IMPACT REPORT
CITY OF TURLOCK HARDING DRAIN BYPASS PROJECT

Pursuant to the California Environmental Quality Act (CEQA), the City of Turlock (City) plans to prepare an environmental impact report (EIR) on its Harding Drain Bypass Project (Project or Proposed Project). The City will be the lead agency under CEQA.

PROJECT BACKGROUND

The City's Regional Wastewater Treatment Plant (WWTP) is located to the west of state Route 99 on Walnut Avenue, north of Linwood Avenue and south of West Main Street and provides treatment of wastewater from a variety of domestic, commercial, and industrial sources. The City's WWTP has a design capacity of 20 million gallons per day (mgd) and currently treats and disposes of approximately 12 mgd. The City's WWTP currently provides secondary treatment and is in the process of upgrading the existing facilities to provide tertiary treatment. Currently, treated effluent is conveyed from the WWTP by an existing underground pipeline system and discharged directly into the Turlock Irrigation District's (TID) Lateral Number 5 Drain, also known as the Harding Drain, immediately downstream of the TID's Drop 32 of the Ceres Main Drain. The Harding Drain is a man-made agricultural drainage facility designed and maintained by TID for drainage purposes and empties into the San Joaquin River approximately 5 miles to the west of the City's existing outfall. Along with treated wastewater from the City, flow in the Harding Drain carries a combination of TID operational spill water, tailwater from row and orchard crops, local runoff due to precipitation, and flows from groundwater dewatering.

PROJECT DESCRIPTION

The primary goal and objective of the Proposed Project is to eliminate the discharge of the City's wastewater effluent to the Harding Drain. As the City is the only permitted discharger in the Harding Drain, the Proposed Project would result in a change in the point of discharge for the City's permitted wastewater effluent discharges and would allow the City to better meet its effluent discharge requirements regulated by the Central Valley Regional Water Quality Control Board (Regional Board).

The Proposed Project would entail the construction of a new outfall pipeline from the City's existing outfall at the intersection of Harding Road and Prairie Flower Road to the eastern bank of the San Joaquin River (Figure 1). The proposed outfall pipeline would be constructed within county road rights-of-way (ROW) and cultivated agricultural land, and will cover a distance of approximately 30,000 feet long (5.7 miles). The proposed pipeline will have a diameter of 60 inches to meet the design criteria for a peak flow of 30 mgd and the flow will be via gravity, discharging directly into the San Joaquin River. During construction, approximately 135 feet of right-of-way (ROW) will be maintained. After construction is complete, a permanent ROW of approximately 60 feet will be maintained. In addition and as part of this pipeline, a new outfall on the San Joaquin River will be constructed approximately a mile upstream of the existing confluence of the Harding Drain and the San Joaquin River (Figure 1). The location of the outfall system will be selected to provide effective mixing of the plant effluent with San Joaquin River water. The river outfall system will also include a post aeration system and an outfall structure system.

Alternative alignments to be considered in the EIR are illustrated in Figure 1.

SCOPE AND CONTENT OF THE EIR

As part of the environmental review process, the City would like to know the views of you and/or your agency as to the scope and content of the environmental information, which is germane to your interests or your agency's statutory responsibilities in connection with the Proposed Project. If you are representing an agency, your agency may need to use the EIR when considering your permit or approval of the Project. Whether your are a public agency, stakeholder, landowner, and/or interested members of the general public, you are encouraged to help participate in the preparation of the EIR by attending the scoping meetings and/or providing written comments as further discussed below.

Scoping Meetings. Two scoping meetings will be conducted to seek public and agency input on alternatives, issues and concerns to be addressed in the EIR. The schedule and location of the scoping meetings are as follows:

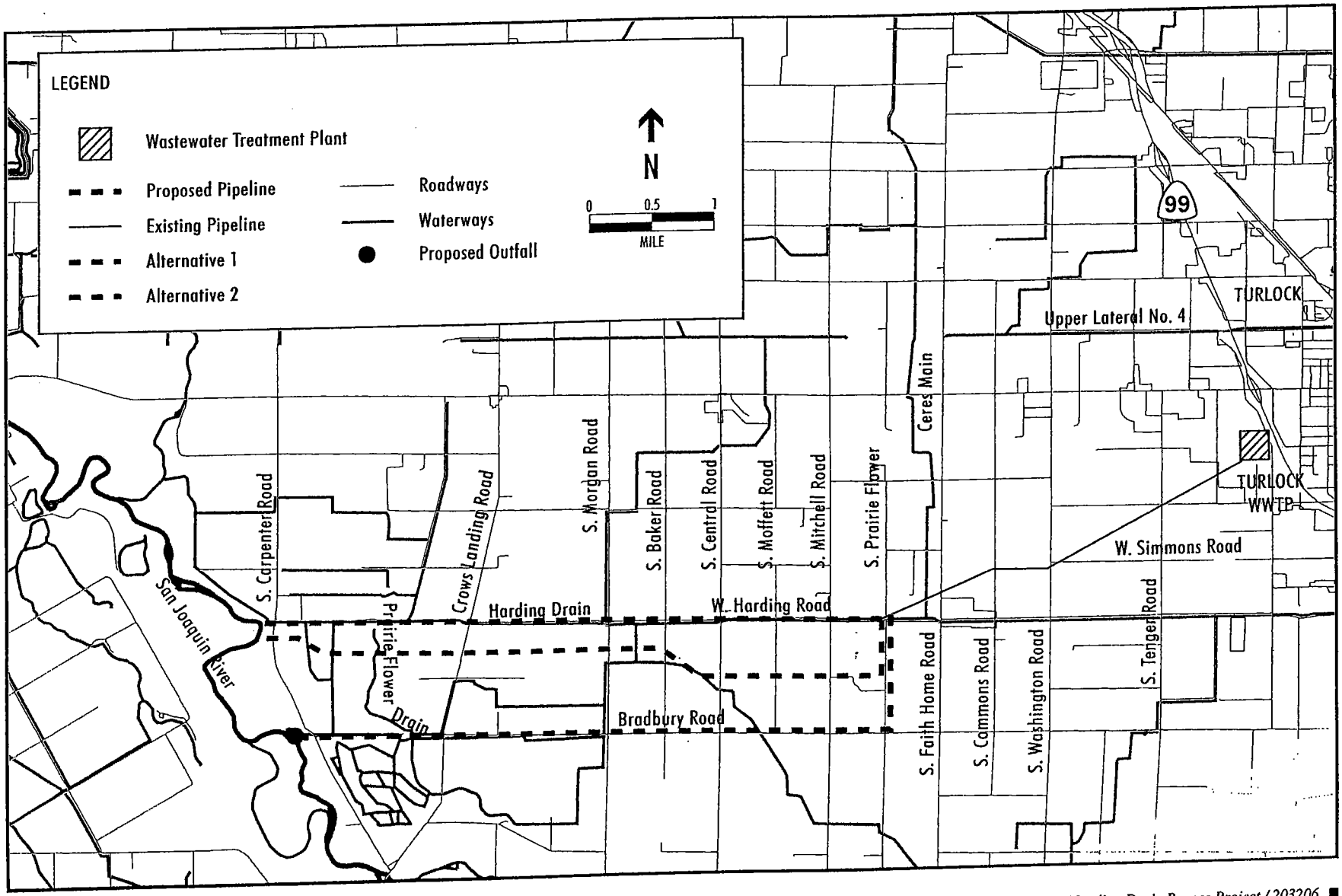
Date: **June 25, 2003**
Time: 2:00pm and 7:00pm

Location: Turlock City Hall, Yosemite Room
Address: 156 S. Broadway
Turlock, CA 95380

Written Comments. In addition to the opportunity to provide input during the scoping meetings, written comments on the scope, content, alternatives, and environmental issues to be addressed in the EIR are also encouraged. Due to the time limits mandated by state law, your response needs to be received by **June 30, 2003**. Please send your written comments to:

Mr. Steve M. Brown
Environmental Science Associates
8950 Cal Center Drive, Suite 300
Sacramento, CA 95826

Please make sure that you provide your name, agency you are representing, title as well as your address and phone number so that we can contact you and keep you informed throughout the EIR process. If you should have any questions or need additional information, please call Mr. Brown at 916/564-4500. The City estimates that the draft EIR will be available for public review in August of 2003.



Harding Drain Bypass Project / 203206 ■

SOURCE: Environmental Science Associates, 2003

Figure 1
Proposed Project and Alternatives

APPENDIX B

COMMENTS RECEIVED ON NOTICE OF PREPARATION

Sign In-Sheet

Scoping Meeting
Environmental Impact Report
City of Turlock – Harding Drain Bypass Project
June 25, 2003
2:00 pm Session

Please Print

Name	Affiliation	Mailing Address	Phone Number	Fax Number	Email Address
IRENE LOPES		3718 So Mitchell Rd Turlock	(209) 668-1617		
Wendel Trinkler Jr	Land Owner	7136 Crows Landing Rd Ceres, Ca 95307	537-9883 606-3120	537-4942	

Sign In-Sheet

Scoping Meeting
Environmental Impact Report
City of Turlock – Harding Drain Bypass Project
June 25, 2003
7:00 p.m. Session

Please Print

Name	Affiliation	Mailing Address	Phone Number	Fax Number	Email Address
Kristy Fay Anderson	—	3807 S. Prairie Flower	(209) 632-7193		
Henry	-	4160 S. Mitchell Rd	209-632-5879		
Rocha Margarida		6730 W. Harding Rd Turlock	209-667 1041		
Louis Reis					
Roger K. Brown,		3707 S. Central Ave	632-5229		
MARGO Souza		3812 S. Morgan Rd	667-5209	668-7324	darryl@earthlink.N.
Marcia Rasmussen		5319 W. Bradbury,	668-0667		
Robert Bettencourt		12501 Crows Landing	632-9262		RBette4061@aol.com
Peter Bettencourt		"	"		"

Richard Bettencourt
12501 Crows Landing Road
Crows Landing, CA 95313

June 26, 2003

RECEIVED
JUN 01 '03
ENVIRONMENTAL SCIENCE ASSOC.

Mr. Steve M. Brown
Environmental Science Associates
8950 Cal Center Drive, Suite 300
Sacramento, CA 95826

PH: 916-564-4500

Reference: Environmental Impact Report
City of Turlock--Harding Drain Bypass Project

Dear Mr. Brown:

As you suggested at the City of Turlock meeting on June 25, 2003, I would like to comment on what would be the best solution for the Proposed Outfall Pipeline.

Out of the 3 proposed sites for the "new outfall pipeline from the City of Turlock to the San Joaquin River", I feel we would be best served by going down Bradbury Road. The other two sites (Harding Road and Alternative 2), would create a lot of problems for us as landowners/renters.

Mr. Brown, if you have any questions please call me at the number indicated below.

Sincerely,

Richard Bettencourt

(209) 632-9262

June 29, 2003

RECEIVED
JUL 01 2003
ENVIRONMENTAL SCIENCE ASSOCIATES

Steve M. Brown,
Senior Project Manager,
8950 Cal Center Drive, Bldg 3, Suite 300,
Sacramento, CA 95826

Dear Mr. Steve Brown,

RE: Sewer Pipeline from Turlock, CA. to the San Joaquin r
(Response to the meeting during the week of June 23, 2

Choice #1: Harding Rd.

Reason #1 – Less disruption of farmers and crops.
#2 – Less damage to irrigation pipelines
#3 – Less damage to soil (hardpan, etc. brought to surface, which must be Thoroughly removed.
#4 – Avoids possible devaluation of property.

Choice #2: Bradbury Rd.

Reason #1 – Less disruption of farmers and crops.
#2 – Less expensive than paying farmers.
#3 – Avoids possible devaluation of property (farmers cannot place buildings, etc. over pipeline, possibly resulting in problems)

~~Sincerely,~~

Sincerely,

Irene Lopez
3718 So. Mitchell Rd.
Turlock, CA 95380
ph. (209) 668-1617

Finally, this project may be subject to the permitting requirements of the District. Any equipment subject to the District's Permit to Operate requirements must obtain an Authority to Construct (ATC) from the District. Construction of equipment which requires an ATC, or any intimately related appurtenances such as foundations and utility hookups for the equipment, cannot begin until an ATC is obtained. This process can take up to 180 days. Construction of equipment not requiring a District permit is not subject to this ATC requirement.

To determine if the project is subject to permit requirements, the applicant should contact the District's Small Business Assistance Office at 557-6464, or our Permit Services Section at 557-6400. To avoid unnecessary delays in the project, this should be done as soon as the applicant has determined the scope of the project.

Thank you for the opportunity to comment. If you have any questions, please feel free to contact me at (209) 557-6400.

Sincerely,

John Cadrett
Air Quality Planner
Northern Region

APCD REF # 20020280

related to any increases in population, vehicle use, and construction activities along with an analysis of the effects of these increases. **Section three** should identify and discuss all feasible mitigation measures which, after implementation, will reduce the air quality impacts generated by this project.

Section 1: ***description of the regulatory environment and existing air quality conditions of the San Joaquin Valley.***

The District has several sources of information available to assist with the existing air quality and regulatory environment section of the EIR. The District's ***Guide for Assessing and Mitigating Air Quality Impacts*** (GAMAQI) contains discussions regarding the existing air quality conditions and trends of the San Joaquin Valley Air Basin, including those pollutants of particular concern: ozone, PM-10, and carbon monoxide. In addition, it provides an overview of the regulatory environment governing air quality at the federal, state, and regional levels. The GAMAQI provides air monitoring data and other relevant information for PM-10 and other pollutants.

Section 2: ***projected pollutant emissions generated during the construction and operational phases of the project.***

As mentioned previously the growth-inducing and cumulative impacts analyses should take into consideration the existing and planned development both within the project area and in the surrounding areas. The District recommends the use of the URBEMIS 7G modeling program to calculate the pollutant emissions resulting from motor vehicle trips generated by this development project. Additional guidance is provided in the GAMAQI.

As this project is considered for approval the applicant should consider the toxic risk associated with diesel-fueled engines and vehicles. The California Air Resources Board has issued a report entitled **Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles** (October 2000). Appendix VII of the report provides several risk characterization scenarios, which may serve as a starting point for estimating risks from diesel engine emissions. The District will work with applicants to review appropriate methodology for estimating toxic risk.

Section 3: ***mitigation measures.***

Mitigation measures must be included in the EIR that reduce the emissions of reactive organic gases (ROG), nitrogen oxides, carbon monoxide, and PM-10 to the maximum extent feasible. Site design and building construction measures that would reduce air quality impacts should be included. In addition, measures to reduce vehicle trips, miles traveled, and cold starts should be included in the project.

San Joaquin Valley
Air Pollution Control District

June 24, 2003

Steve M. Brown
Environmental Sciences Associates
8950 Cal Center Drive, Suite 300
Sacramento, CA 95826

SUBJECT: NOP CITY OF TURLOCK HARDING DRAIN BYPASS PROJECT.

Dear Mr. Brown:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the proposed project and offers the following comments:

The San Joaquin Valley's air quality has been designated nonattainment by the EPA and by the Air Resources Board (ARB) for O_3 (ozone) and PM-10 (fine particulate matter, dust). The Federal Clean Air Act (CAA) and the California Clean Air Act require areas that are designated nonattainment to reduce emissions until standards are met.

Based on the information provided in the Notice of Preparation, it is difficult to determine what impacts this project will have on ambient air quality. During the construction phase, ozone precursor emissions related to heavy equipment use as well as fugitive dust (PM-10) emissions related to excavation activities will be generated. Additionally, if completion of this project will enable future growth to occur beyond those identified in previous completed environmental analysis (in excess of that allowed by the General Plan) then the growth-inducing impacts will need to be addressed and mitigated. If the growth-inducing impacts have previously been addressed then no further study is required on this portion of the project.

The District has established a significance threshold of 10 tons per year for both oxides of nitrogen (NOx) and reactive organic compounds (ROG or VOC). If ozone precursor emission exceed the significant threshold, after any mitigation, then an EIR should be completed and include the following information.

The District recommends that the air quality section of the EIR have three main components. **Section one** should provide a description of the regulatory environment and existing air quality conditions impacting the San Joaquin Valley. **Section two** should provide estimates of existing emissions and projected pollutant emissions

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-698

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

June 6, 2003

RECEIVED
JUN 20 2003
ENVIRONMENTAL SCIENCE

Dan Madden
City of Turlock
156 South Broadway, Suite150
Turlock, California 95380

Staff for The Department of Water Resources has reviewed State Clearinghouse Document 2003062002 "Harding Drain Bypass Project" and provides the following comments:

The project as proposed encroaches into the San Joaquin River Designated Floodway, an adopted plan of Flood Control, over which The Reclamation Board has jurisdiction. The California Code of Regulations, Title 23, Waters, Article 3, require that a Board permit be obtained before the start of any work including excavation and construction activities where The Reclamation Board exercises their authority.

Section 8(b)(2) 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.

Section 8(b)(4) 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.

If you have any questions, please contact me at (916) 653-0402, or Samuel Brandon at (916) 653-6491.

Sincerely,

Sterling Sorenson
Water Resources Engineering Associate
Floodway Protection Section

cc: Richard Marshall, Chief
Flood Project Inspection Section
3310 El Camino Avenue, Room B-20
Sacramento CA 95821

TURLOCK IRRIGATION DISTRICT
333 EAST CANAL DRIVE
POST OFFICE BOX 949
TURLOCK, CALIFORNIA 95381
(209) 883-8300

Don Pedro Dam a
Powerhouse

June 25, 2003

Mr. Steve M. Brown
Environmental Science Associates
8950 Cal Center Drive, Suite 300
Sacramento, CA 95826

RECEIVED
ENVIRONMENTAL SCI

RE: Environmental Impact Report (EIR)
City of Turlock Harding Drain Bypass Project

Dear Mr. Brown:

The Engineering Department of the Turlock Irrigation District (District) appreciates the opportunity to review and comment on the referenced project. The Harding Drain is a facility operated and maintained by the District for the purpose of conveying irrigation tail-water to the San Joaquin River. The District requests that the EIR address the loss of any flow in the Harding Drain as a result of the proposed relocation of the City's outfall line. In addition, the proposed and alternative alignments of the new pipeline will impact numerous irrigation related facilities. These include irrigation canals, ditches and pipelines, pumplines, drainage ditches and pipelines and other miscellaneous irrigation facilities. Impacts to these facilities will have to be addressed during the design and construction phases of the project.

If you have any questions concerning this response to the above referenced project please contact me at (209) 883-8384.

Sincerely,

Arie W. Vander Pol

Arie W. Vander Pol
Engineering Technician, Civil
CF: 486 - Turlock Sewage Effluent

Finally, this project may be subject to the permitting requirements of the District. Any equipment subject to the District's Permit to Operate requirements must obtain an Authority to Construct (ATC) from the District. Construction of equipment which requires an ATC, or any intimately related appurtenances such as foundations and utility hookups for the equipment, cannot begin until an ATC is obtained. This process can take up to 180 days. Construction of equipment not requiring a District permit is not subject to this ATC requirement.

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Thank you for the opportunity to comment. If you have any questions, please feel free to contact me at (209) 557-6400.

Sincerely,

John Cadrett
Air Quality Planner
Northern Region

APCD REF # 20020280

related to any increases in population, vehicle use, and construction activities along with an analysis of the effects of these increases. **Section three** should identify and discuss all feasible mitigation measures which, after implementation, will reduce the air quality impacts generated by this project.

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The District has several sources of information available to assist with the existing air quality and regulatory environment section of the EIR. The District's ***Guide for Assessing and Mitigating Air Quality Impacts*** (GAMAQI) contains discussions regarding the existing air quality conditions and trends of the San Joaquin Valley Air Basin, including those pollutants of particular concern: ozone, PM-10, and carbon monoxide. In addition, it provides an overview of the regulatory environment governing air quality at the federal, state, and regional levels. The GAMAQI provides air monitoring data and other relevant information for PM-10 and other pollutants.

Section 2: ***projected pollutant emissions generated during the construction and operational phases of the project.***

As mentioned previously the growth-inducing and cumulative impacts analyses should take into consideration the existing and planned development both within the project area and in the surrounding areas. The District recommends the use of the URBEMIS 7G modeling program to calculate the pollutant emissions resulting from motor vehicle trips generated by this development project. Additional guidance is provided in the GAMAQI.

As this project is considered for approval the applicant should consider the toxic risk associated with diesel-fueled engines and vehicles. The California Air Resources Board has issued a report entitled **Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles** (October 2000). Appendix VII of the report provides several risk characterization scenarios, which may serve as a starting point for estimating risks from diesel engine emissions. The District will work with applicants to review appropriate methodology for estimating toxic risk.

Section 3: ***mitigation measures.***

Mitigation measures must be included in the EIR that reduce the emissions of reactive organic gases (ROG), nitrogen oxides, carbon monoxide, and PM-10 to the maximum extent feasible. Site design and building construction measures that would reduce air quality impacts should be included. In addition, measures to reduce vehicle trips, miles traveled, and cold starts should be included in the project.

San Joaquin Valley
Air Pollution Control District

June 24, 2003

Steve M. Brown
Environmental Sciences Associates
8950 Cal Center Drive, Suite 300
Sacramento, CA 95826

SUBJECT: NOP CITY OF TURLOCK HARDING DRAIN BYPASS PROJECT.

Dear Mr. Brown:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the proposed project and offers the following comments:

The San Joaquin Valley's air quality has been designated nonattainment by the EPA and by the Air Resources Board (ARB) for O_3 (ozone) and PM-10 (fine particulate matter, dust). The Federal Clean Air Act (CAA) and the California Clean Air Act require areas that are designated nonattainment to reduce emissions until standards are met.

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The District has established a significance threshold of 10 tons per year for both oxides of nitrogen (NOx) and reactive organic compounds (ROG or VOC). If ozone precursor emission exceed the significant threshold, after any mitigation, then an EIR should be completed and include the following information.

The District recommends that the air quality section of the EIR have three main components. **Section one** should provide a description of the regulatory environment and existing air quality conditions impacting the San Joaquin Valley. **Section two** should provide estimates of existing emissions and projected pollutant emissions

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-

Stanislaus County
Striving to be the Best

CHIEF EXECUTIVE OFFICE

Reagan M. Wilson
Chief Executive Officer

1010 10th Street, Suite 6800, Modesto, CA 95354
P.O. Box 3404, Modesto, CA 95353-3404

Patricia Hill Thomas
Assistant Executive Officer
Phone: 209.525.6333 Fax 209.544.6886

RECEIVED
JUL 1 1 2003
ENVIRONMENTAL SCIENCE ASSOC.

July 9, 2003

Steve Brown
Environmental Science Associates
8950 Cal Center Drive, Suite 300
Sacramento, CA 95826

SUBJECT: **ENVIRONMENTAL REFERRALS-CITY OF TURLOCK- NOTICE OF HARDING DRAIN BYPASS PORJECT**

Mr. Brown:

The Stanislaus County Environmental Review Committee (ERC) has reviewed the subject project and has the following comment(s):

- The ERC attaches hereto and incorporates herein by reference the correspondence from the San Joaquin Valley Air Pollution Control District to Environmental Science Associates dated June 24, 2003.

The ERC appreciates the opportunity to comment on this project.

Sincerely,

Arlene Stevens

W. Richard Jantz, Deputy Executive Officer
Arlene Stevens, Associate Management Consultant
Environmental Review Committee

AS:lbh

cc: ERC Members

APPENDIX C

RWQCB CEASE AND DESIST ORDER
& NPDES PERMIT

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-01-123

REQUIRING THE CITY OF TURLOCK
WASTEWATER TREATMENT FACILITY
TO CEASE AND DESIST
FROM DISCHARGING CONTRARY TO REQUIREMENTS

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds:

1. On 30 April 1999, the Board adopted Cease and Desist (C&D) Order No. 99-050 for the City of Turlock (hereafter Discharger) Wastewater Treatment Plant in Stanislaus County. C&D Order No. 99-050 directed the Discharger to comply with a time schedule to consistently achieve compliance with effluent limitations and receiving water limitations contained in its previous Waste Discharge Requirements (WDR) Order No. 95-059, NPDES Permit No. CA0078948. These included Effluent Limitations B.1 (which included limits for BOD, TSS, and total coliform) and B.5 (which included acute toxicity limitations) and Receiving Water Limitations E.13 and E.14 (which included chronic toxicity limitations).

2. On 11 May 2001, the Board adopted WDR Order No. 5-01-122, for the Discharger. WDR Order No. 5-01-122 serves as the update of WDR Order No. 95-059, regulating the discharge of approximately 10.3 million gallons per day (mgd) of treated domestic and industrial wastewater to Turlock Irrigation District Lateral No.5 Drain (hereafter referred to as the Harding Drain), which is tributary to the San Joaquin River. The design flow of the facility is 20 mgd.

3. This C&D Order rescinds and updates C&D Order No. 99-050, which referenced violations of the previous WDR Order No. 95-059.

4. WDR Order No. 5-01-122, Effluent Limitation No. B.2, includes interim effluent limits for BOD, TSS, and total coliform which are the same concentration limits that were included in WDR Order No. 95-059. The interim limits are in place until the Discharger completes an upgrade of its wastewater treatment facilities to tertiary treatment by 1 April 2006, as required in WDR Order No. 5-01-122. Tertiary treatment of the wastewater will improve the quality of the effluent by lowering BOD, TSS and total coliform levels. Effluent Limitation No. B.2 states:

   Interim total coliform organism, BOD and TSS effluent limits will be in effect through 1 April 2006. The interim effluent limits are as follows:

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum
BOD[1]	mg/l	30[2]	45[2]	90[2]
	lbs/day[3]	5004	7506	15,012
TSS	mg/l	30[2]	45[2]	90[2]
	lbs/day[3]	5004	7506	15,012
Total Coliform	MPN/100 ml	23[4]	--	500

1 5-day, 20°C biochemical oxygen demand (BOD)
2 To be ascertained by 24-hour composite samples.
3 Based on an average dry weather flow capacity of 20 mgd.
4 Monthly median value.

5. The Discharger violated its permitted daily maximum coliform limitation in July 1996, April, June and November 1997, twice in March 1998, August 1998, twice in October 1998, and once in February 2000. Violations of TSS effluent limitations have been as follows: daily maximum violation in May 1997; monthly average, weekly average, and daily maximum violations in March 1998; and a violation of the monthly average in December 1998. Violations of BOD effluent limitations have been as follows: a violation of the monthly average limit in May 1997; a violation of the maximum daily limit in November 1997; and a violation of the monthly average limit in December 1998. The Discharger also had a violation of the daily maximum limit for settleable matter in August 1998 and February 2000. Some of these violations reportedly have resulted from operational changes in the wastewater treatment plant in attempts to reduce effluent toxicity described in Finding No. 8 below.

6. The Discharger has violated Order No. 95-059 and threatens to violate Order No. 5-01-122, Effluent Limitation B.2, which include interim effluent limitations for BOD, TSS, and total coliform. The Discharger can take immediate reasonable measures to achieve continuous compliance with Effluent Limitation B.2, of Order No. 5-01-122.

7. WDR Order No. 5-01-122, Effluent Limitation B.9 states:

   Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   Minimum for any one bioassay - - - - - - - - 70%
   Median for any three or more consecutive bioassays - - - - - - 90%

8. The Discharger's monitoring results for acute (96-hour) toxicity bioassay tests conducted on the effluent in May 1997, March 1998 and May 1998 resulted in test species survival of 50%, 0%, and 0%, respectively, in violation of the effluent limitation detailed above in Finding No. 7.

9. WDR Order No. 5-01-122, Receiving Water Limitations C.11 and C.12 state:

   C.11: Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded; and

   C.12: Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

10. The City's monitoring for chronic toxicity conducted on the effluent consistently have indicated results of significant reductions in both growth of fathead minnows and reproduction of ceriodaphnia dubia, in threatened violation of Receiving Water Limitations referenced above in Finding No. 9.

11. WDR Order No. 5-01-122, contains Effluent Limitations for ammonia as contained in B.1, which reads in part as follows:

Constituent	Unit	Monthly Average	Daily Maximum[2]
Ammonia (as N)	mg/l	Attachment B	Attachment C
	lbs/day[3]	See footnote 3	See footnote 3

1 Effective 1 May 2006
2 Maximum concentration
3 Using the concentration in mg/l, determined from Attachment B or C calculate the pounds per day using the formula: x µg/l x 8.34 x 20 mgd where x = the measured concentration
4 Based on a design treatment capacity of 20 mgd

12. The Discharger's reported monthly average ammonia and pH effluent levels have exceeded chronic criteria at least 29 out of 33 months since February 1995. The Discharger's monthly maximum ammonia levels and the corresponding pH levels of the effluent at those times indicate that acute criteria have been exceeded at least 10 months out of the 33 reported during the same time period. Review of data compiled since 1995 shows the monthly average effluent ammonia concentration has been approximately 13.5 mg/l and the highest recorded ammonia reading was 39.3 mg/l. These concentrations exceed the limitations contained in Order No. 5-01-122, which are included in that Order as Attachment B and Attachment C. These concentration limits are based on US EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life and vary based on the pH and temperature of the water.

13. The City conducted a Toxicity Identification Evaluation (TIE) in 1996 and determined that high effluent ammonia levels were the source of acute and chronic toxicity.

14. The Discharger is currently in the process of designing and constructing nitrification facilities at its wastewater plant that should substantially lower effluent ammonia levels. However, until construction of these facilities is complete, the Discharger threatens to violate effluent ammonia limitations and acute and chronic toxicity limitations included in WDR Order No. 5-01-122.

15. WDR Order No. 5-01-122, contains Effluent Limitations for molybdenum and aluminum as contained in B.1, which reads in part as follows:

Constituent	Unit	Monthly Average	Daily Maximum
Molybdenum	µg/l	10	15
	lbs/day[1]	1.67	2.50
Aluminum	µg/l	87	750
	lbs/day[1]	14.5	125

[1] Based on a design treatment capacity of 20 mgd

16. Quarterly monitoring reports submitted by the City since 1995 show effluent molybdenum concentrations detected on eight of 19 sampling events. The effluent molybdenum concentrations detected have ranged from 15 to 50 µg/l. Based on review of results of past monitoring, the Discharger threatens to violate its effluent limitations for molybdenum as described in Finding No. 15.

17. Quarterly monitoring reports submitted by the Discharger since 1995 show effluent aluminum concentrations detected on eight of fifteen sampling events. The effluent aluminum concentrations have ranged from 100 to 700 µg/l. Based on review of past monitoring, the Discharger threatens to violate its effluent limitations for aluminum as described in Finding No. 15.

18. The Discharger can take reasonable measures to achieve continuous compliance with: 1) ammonia, molybdenum, and aluminum limitations included in Effluent Limitation B.1; 2) acute toxicity limitations included in Effluent Limitation B.9; and 3) chronic toxicity limitations included in Receiving Water Limitations C.11 and C.12, as included in Order No. 5-01-122.

19. In accordance with California Water Code Section 13385(j)(3), the Regional Board finds that, based upon results of historical effluent monitoring, the Discharger is not able to consistently comply with the molybdenum and aluminum effluent limitations. The molybdenum and aluminum limitation are a new requirement that becomes applicable to the Permit after the effective date of adoption of the waste discharge requirements, and after

1 July 2000, for which new or modified control measures are necessary in order to comply with the limitation, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

Since the time schedule for completion of action necessary to achieve full compliance exceeds one year, interim requirements and dates for their achievement are included in this Order. This time schedule does not exceed five years. Source control actions can be taken to correct the violations that would otherwise be subject to mandatory penalties under California Water Code section 13385(h) and (i), and the Discharger can take reasonable measures to achieve compliance within five (5) years from the date the waste discharge requirements were required to be reviewed pursuant to Section 13380, by 24 March 2000. California Water Code section 13385 (j)(3)(D) requires that the Discharger prepare a molybdenum and aluminum pollution prevention plan pursuant to CWC Section 13263.3.

20. On 11 May 2001, in Sacramento, California, after due notice to the Discharger and all other affected persons, the Board conducted a public hearing at which evidence was received to consider a Cease and Desist Order to establish a time schedule to achieve compliance with waste discharge requirements.

21. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 2100, et seq.), in accordance with Section 15321 (a)(2), Title 14, California Code of Regulations.

22. Any person adversely affected by this action of the Board may petition the State Water Resources Control Board (State Board) to review the action. The petition must be received by the State Board Office of the Chief Counsel, P.O. Box 100, Sacramento, CA, 95812-0100, within 30 days of the date which the action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request.

IT IS HEREBY ORDERED THAT Order No. 99-050 is rescinded and:

1. The City of Turlock shall cease and desist from discharging wastes contrary to Waste Discharge Requirements Order No. 5-01-122, as detailed in Order No. 2, Order No. 3, and Order No. 4 below.

2. The City of Turlock shall immediately commence operations of their wastewater treatment facilities to achieve full compliance with Effluent Limitation B.2 as contained in WDRs Order No. 5-01-122, and as identified in Finding No. 4.

3. The City of Turlock shall comply with the following time schedule to assure compliance with the Effluent Limitations and the Receiving Water Limitations contained in Waste Discharge Requirements Order No. 5-01-122. Specifically, compliance with ammonia

limitations included in Effluent Limitation B.1, acute toxicity limitations included in Effluent Limitation B.9, and chronic toxicity limitations included in Receiving Water Limitations C.11 and C.12 as described in the above Findings must be achieved according to the following time schedule:

Task	Compliance Date
Progress Report[1] and Implementation Schedule	1 November 2001
Progress reports	1 May and 1 November of each year
Achieve Full Compliance	1 December 2003

[1] The progress report shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including construction progress, evaluate the effectiveness of the implemented measures and assess whether additional measures are necessary to meet the time schedule.

4. The City of Turlock shall comply with the following time schedule to assure compliance with the Effluent Limitations contained in Waste Discharge Requirements Order No. 5-01-122. Specifically, compliance with molybdenum, and aluminum limitations included in Effluent Limitation B.1, as described in the above Findings must be achieved according to the following time schedule:

Task	Compliance Date
Progress Report[1] and Implementation Schedule	1 November 2001
Progress reports	1 May and 1 November of each year
Submit CWC Section 13263.3 Pollution Prevention Plan	1 November 2003
Achieve Full Compliance (to avoid mandatory penalties per Water Code Section 13385	24 March 2005
Achieve Full Compliance (no later than)	1 May 2006

[1] The progress report shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including construction progress, evaluate the effectiveness of the implemented measures and assess whether additional measures are necessary to meet the time schedule.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may apply to the Attorney General for judicial enforcement or issue a complaint for Administrative Civil Liability.

I, GARY M. CARLTON, Executive Officer, do herby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 May 2001.

GARY M. CARLTON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-01-122

NPDES NO. CA0078948

WASTE DISCHARGE REQUIREMENTS FOR CITY OF TURLOCK WATER QUALITY CONTROL FACILITY STANISLAUS COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The City of Turlock (hereafter Discharger) submitted a Report of Waste Discharge dated 12 July 1999, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the City of Turlock Water Quality Control Facility.

2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the City of Turlock, and the community service districts of Keyes and Denair. The treatment plant is in Section 21, T5S, R10E, MDB&M, as shown on Attachment A, a part of this Order. Treated combined municipal and industrial wastewater is discharged to the Harding Drain downstream of the Turlock Irrigation District (TID) Lateral No. 5 Drain, tributary to the San Joaquin River, a water of the United States, at the point latitude 37° 27'48" and longitude 121° 01'54". The Harding Drain is a man-made agricultural drainage facility designed and maintained by TID for drainage purposes. Along with treated wastewater from the City of Turlock, flow in Harding Drain carries a combination of TID operational spill water, tailwater from row and orchard crops, municipal stormwater flows, local runoff due to precipitation, flows from groundwater dewatering wells and subsurface drains, urban runoff, and historically, illegal runoff from dairies.

3. The Discharger diverts a portion of its secondarily treated wastewater, prior to discharge into the Harding Drain to the Bar-Vee Dairy for irrigation of pasture. The discharge of wastewater at the Bar-Vee Dairy is regulated under separate Water Reclamation Requirements, Order No. 92-021 with Bar-Vee Dairy named as the Discharger and therefore responsible for the discharge. Order No. 92-021 allows a monthly average dry weather flow of 7.9 million gallons per day (mgd) to the Bar-Vee Dairy.

4. The treatment system consists of screening at the influent pump station, dissolved air flotation with grit and scum removal, anaerobic and aerobic digesters, sludge drying beds, ABF towers, activated sludge, final clarification and disinfection by chlorination followed by dechlorination. The wastewater facilities also include a 37.2 million gallon capacity emergency storage basin, which allows the diversion and storage of primary effluent if necessary. The emergency storage basin was constructed with a six-inch bentonite liner on the bottom and sides. The basin is used for the

temporary storage of influent wastes that may cause treatment plant upsets or to hold effluent wastewater that may not meet effluent permit limitations. Wastewater from the basin is recycled to the treatment plant as conditions allow. Biosolids generated are used in agricultural land application and public distribution.

The following are treatment plant effluent characteristics:

Monthly Average (dry weather) Flow:	10.3 million gallons per day (mgd)
Daily Peak Wet Weather Flow:	14.5 mgd
Design Flow (dry weather):	20.0 mgd
Average Temperature:	22.6 °C Summer; 16.0 °C Winter

Constituent	Monthly Average mg/l	Monthly Average lbs/day
BOD_5@20°C	19.0	1650
Total Suspended Solids	21.8	1900
Ammonia (as N)	13.1	1125
COD	66.5	5700

5. The Discharger is actively pursuing a major reclamation project that may result in elimination of the City's need to discharge treated effluent into the Harding Drain. The Discharger is also considering t option of constructing a new pipeline to direct seasonal discharges directly to the San Joaquin River. The Discharger is conducting a Reclamation Project Feasibility Study which will evaluate reuse options including: deliver recycled wastewater to Westland Water District, or other irrigation districts and/or purchase farmland for a dedicated irrigation site with potential for a seasonal discharge to surface waters. This permit renewal will apply to the discharge to the Harding Drain for the next five years while discharge alternatives continue to be evaluated. If alternative means of disposal are proposed, new waste discharge requirements will be considered at that time.

As part of the reclamation program, the Discharger has decided to proceed to build tertiary treatment facilities. It is possible that tertiary treatment will allow the Discharger to meet all effluent limitation contained in this permit. However, the ability to meet this permit's effluent limitations will not be known until the new tertiary facilities are constructed and operational. Once data is obtained from the new facility, re-evaluation of reasonable potential will be provided based on the quality of the new effluent. If the quality of the tertiary effluent does not meet all permit limitations, additional treatment and disposal options will be proposed. Provisions of this permit allows five years for the construction of tertiary treatment facilities and to achieve full compliance with effluent limitations regarding BOD, suspended solids, total coliform, and turbidity. Full compliance with effluent limitations for specified metals and bromodichloromethane is also required with the construction of the tertiary facilities in five years that is the maximum time allowed by the California Toxics Rule.

The Discharger's reclamation program will be designed to also minimize its discharge to the Hardir Drain after tertiary facilities are in place. It will take several years to implement a program to

beneficially reuse the effluent through reclamation. The Discharger's estimate is that it will take five years to plan, finance, design, and construct the new facilities. The implementation time schedule of long-term disposal options, if necessary, will depend on the need to move the discharge point or eliminate the discharge.

6. The U.S. Environmental Protection Agency (US EPA) and the Board have classified this discharge as a major discharge.

7. The discharge is presently governed by Waste Discharge Requirements Order No. 95-059, adopted by the Board on 24 March 1995.

APPLICABLE PLANS, POLICIES AND REGULATIONS

8. The Board adopted a Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins (hereafter Basin Plan) which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters of the Basins. These requirements implement the Basin Plan.

9. US EPA adopted the National Toxics Rule (NTR) on 5 February 1993 and the California Toxics Rule (CTR) on 18 May 2000. The NTR and the CTR contain water quality standards applicable to this discharge.

10. The State Water Resources Control Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California also known as the State Implementation Policy (SIP) on 2 March 2000. The SIP was developed to prescribe specific statewide procedures to incorporate NTR and CTR criteria into NPDES permits. The SIP also establishes implementation provisions for the incorporation into NPDES permits of priority pollutant objectives established by Regional Water Quality Control Boards in their water quality control plans (Basin Plans), monitoring requirements for 2,3,7,8 TCDD equivalents and chronic toxicity control provisions. The SIP procedures were followed in this permit in conducting reasonable potential analyses and determining appropriate effluent limitations as necessary.

11. The Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The attached Fact Sheet is a part of this Order.

RECEIVING WATER CONDITIONS

12. The beneficial uses of the Harding Drain are not identified in the Basin Plan, however, the Plan states, "The beneficial uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan at page II-1.00 states that: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning." Existing and potential beneficial uses that currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. It should be noted that it is impractical to list every surface water in the Region in the

Basin Plan. Although the Basin Plan does not identify any beneficial uses specifically for the Harding Drain, the Basin Plan does identify present and potential uses for the San Joaquin River, to which the Harding Drain is tributary. Upon review of the flow conditions, habitat values, and beneficial uses of Harding Drain, the Board finds that the beneficial use identified in the Basin Plan for the San Joaquin River, from the mouth of the Merced River to the City of Vernalis, are applicable to the Harding Drain.

13. The beneficial uses of the San Joaquin River, from the mouth of the Merced River to the City of Vernalis, downstream of the discharge as identified in Chapter 2 and in Table II-1 of the Basin Plan are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, body contact recreation, canoeing and rafting, other non-body contact water recreation, esthetic enjoyment, warm freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat and preservation and enhancement of fish, wildlife, and other aquatic resources. The Basin Plan defines the beneficial uses and with respect to disposal of wastewaters states that "disposal of wastewaters is not a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses."

The Board finds that the Beneficial Uses identified in the Basin Plan for the San Joaquin River are applicable to the Harding Drain based upon the following facts:

a. *Domestic Supply and Agricultural Supply*

The State Water Resources Control Board (SWRCB) has issued water rights to existing water users along the San Joaquin River downstream of the discharge for domestic and irrigation uses. The Harding Drain is an ephemeral water body providing for agricultural drainage and irrigation supply to users downstream of the discharge. In addition to the existing water uses, growth in the area downstream of the discharge is expected to continue, which presents a potential for domestic use and increased agricultural uses of the water in the Harding Drain.

b. *Water Contact and Noncontact Recreation and Esthetic Enjoyment*

The Board finds that the discharge flows through agricultural areas, that there is ready public access to the Harding Drain, that exclusion of the public is unrealistic and that contact recreational activities along the Harding Drain and downstream waters are likely to increase as the population in the area grows. the Harding Drain flows through areas of general public access prior to entering the San Joaquin River. The San Joaquin River also offers recreational opportunities.

c. *Freshwater Replenishment*

When water is present in the Harding Drain, there is hydraulic continuity between the Harding Drain and the San Joaquin River. During periods of hydraulic continuity, the Harding Drain adds to the water quantity and may impact the quality of water flowing down stream in the San Joaquin River.

d. *Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources.*

The Harding Drain flows to the San Joaquin River. The Basin Plan (Table II-1) designates the San Joaquin River as having both a cold and warm water migration and warm water spawning. Therefore, pursuant to the Basin Plan the cold designation also applies to the Harding Drain. The cold-water migration designation and the designation of warm water spawning necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/l. This approach recognizes that, if the naturally occurring in-stream dissolved oxygen concentration is below 7.0 mg/l, the Discharger is not required to improve the naturally occurring level.

The beneficial uses of any specifically identified water body generally apply to its tributary streams. The Board finds that, based on hydraulic continuity, aquatic life migration, existing and potential water uses, and the reasonable potential for contact recreational activities, that the beneficial uses of the San Joaquin River apply to the Harding Drain. The Board also finds that based on the available information and on the Discharger's application, that the Harding Drain, absent the discharge, is at times an ephemeral stream. The ephemeral nature of the Harding Drain means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the Harding Drain help support the cold-water aquatic life migration. Both conditions may exist within a short time span, where the Harding Drain would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the San Joaquin River. Dry conditions occur primarily in spring and fall months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall events. The beneficial uses of the underlying ground water are municipal and domestic, industrial service, industrial process and agricultural supply.

14. The Harding Drain, TID's Lateral No. 5 and the San Joaquin River are listed as impaired water bodies pursuant to Section 303(d) of the Federal Clean Water Act. Also, downstream of the San Joaquin River, the Sacramento-San Joaquin Delta is listed as water quality impaired, and discharges into the river upstream are being considered for their contribution to some of those water quality impairments. Specifically, TID Lateral No.5, which flows into the Harding Drain, is included on the 303(d) list due to its water quality impairment from elevated levels of the

following: ammonia, chlorpyrifos, diazinon, and unknown toxicity. The San Joaquin River is included on the California 303(d) List due to its water quality impairment from elevated levels of the following: boron, chlorpyrifos, DDT, diazinon, dissolved oxygen, electrical conductivity, group A pesticides, selenium and unknown toxicity. The Sacramento-San Joaquin Delta is listed as water quality impaired for the following constituents: chlorpyrifos, DDT, diazinon, electrical conductivity, group A pesticides, mercury, organic enrichment/low dissolved oxygen, and unknown toxicity. Regional Board staff is currently in the process of developing Total Mass Daily Loads (TMDLs) for some of the 303(d) listed constituents on the San Joaquin River and the Sacramento/San Joaquin Delta Waterways. When completed, the TMDLs will allocate waste loads to the various dischargers along the appropriate waterways. This Order contains stringent effluent limits as necessary to protect the beneficial uses of the receiving waters until such time TMDLs are completed for all constituents of concern on the 303(d) list and loads can be allocated. Provision G.3 of this Order contains a reopener to modify and/or include effluent limits as necessary when load allocations for any 303(d) listed constituents are finally determined.

15. The Discharger has provided information that the dilution available for Turlock's effluent in the San Joaquin River since 1992 has averaged 236:1 (river flow:effluent flow reaching the river), however a monthly average dilution has been recorded as low as 10:1 in this same time period, and the Discharger is currently discharging only half of its permitted flow. Dilution of receiving water flow to effluent flow available in the Harding Drain is approximately 3:1 on average and at times each year there is no flow in the drain other than the Discharger's effluent. Since the worst-case condition has no dilution at the point of discharge into the Harding Drain, dilution was not considered in determining reasonable potential for effluent limitations and therefore the effluent limitations were applied at the end-of-pipe.

TERTIARY TREATMENT REQUIREMENTS

16 Beneficial uses that can be applied to the Harding Drain and the San Joaquin River include water contact and noncontact recreation and agricultural supply. The effluent limitations included in this Order for disinfection are based on both the dilution available in the receiving waters and the protection of those beneficial uses of the receiving waters that have the potential to adversely impact public health. The California Code of Regulations, Title 22, Division 4, Chapter 3, (Title 22) contains criteria for the reuse or reclamation of wastewater as an alternative to discharging to surface waters. Title 22 criteria were developed to establish minimum treatment and disinfection standards for wastewater that will ensure the protection of the public health from any detrimental effects due to exposure to reclaimed wastewaters. This Order does not apply Title 22 standards to the discharge, however, in assessing the discharge standards necessary to protect the site-specific beneficial uses of the Harding Drain and the San Joaquin River; Title 22 standards were compared to the level of treatment required to protect the public health when in contact with treated wastewater or when directly using undiluted or minimally diluted effluent for food crop irrigation. These recommendations also apply to irrigation of pasture where lactating cows have access. Title 22 states that it is necessary for wastewater to receive adequate treatment for reuse as irrigation water for food crops and to protect for unrestricted contact recreation.

17. The Harding Drain is essentially the same as any other conveyance system (pipe or canal) when upstream flows are not present for dilution. The California Department of Health Services has determined that a specific level of treatment is required for water delivered in a dedicated pipe or canal, therefore, that same level of treatment is necessary for water delivered in the Harding Drain for these same uses, as well as when minimum dilution is available in the San Joaquin River.

18. The California Department of Health Services (DHS) provided specific comments and recommendations regarding the City of Turlock's wastewater discharge into the Harding Drain and the San Joaquin River in correspondence to the Board dated 11 July 2000. Specifically, DHS recommended tertiary treatment (i.e. filtration and disinfection in conformance with the provisions of the Wastewater Recycling Regulations). DHS based their opinion on the lack of dilution in the Harding Drain and the San Joaquin River, and cited the following specific concerns: 1) potential unrestricted irrigation with water from the drain; 2) public contact with the water in the drain and in particular, public contact with the water at the confluence of the drain and the River; and 3) protection of downstream domestic water supply sources in the San Joaquin River.

19. The Board finds that tertiary treatment (filtration) is required to protect the beneficial uses of contact recreation and agricultural irrigation downstream of the discharge in the Harding Drain and the San Joaquin River. The effluent limitation for coliform organisms is intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing pathogens. The method of treatment is not prescribed in this Order, but must meet the level of treatment or equivalent as specified in Title 22 and other recommendations as detailed in Finding No. 16 above by the California Department of Health Services. In addition to coliform testing, a turbidity effluent limitation has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process or equivalent is also capable of reliably meeting a reduced turbidity limitation of 2 NTU as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Monitoring and limiting levels of turbidity has a major advantage for evaluating filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours to days to identify high coliform concentrations. Effluent limitations for both BOD and TSS have been established at 10 mg/l, as a monthly average, 15 mg/l as a weekly average, and 20 mg/l as a daily maximum. The limitations are technology-based on the capability of tertiary wastewater treatment systems.

20. The Board must consider factors specified in the California Water Code (CWC) Section 13263, including considering the provisions of CWC Section 13241, in adopting a permit that contains effluent limitations more stringent than would be dictated by numeric objectives in the Basin Plan. The disinfection/coliform limitations in the proposed waste discharge requirements are necessary to protect the beneficial uses prescribed in the Basin Plan. The Discharger presented cost estimates for the addition of tertiary treatment at their wastewater facilities. The total estimated project cost was approximately 21.4 million dollars. The Discharger also indicated that this project would require a 35 percent increase in sewer fees. The Discharger projected that annual additional

operations and maintenance costs for tertiary treatment would be approximately one million dollars. As required by CWC Section 13241 these cost estimates were considered by the Board prior to the adoption of this Order.

21. Order No. 95-059 allowed the Discharger to discharge up to 20 mgd to Lateral No. 5 Drain (Harding Drain) and corresponding BOD and TSS limitations in the permit were 30 mg/l as a monthly average, 45 mg/l as a weekly average and 90 mg/l as a daily maximum for both BOD and TSS. Effluent BOD levels have the potential to affect downstream dissolved oxygen (DO) concentrations in the receiving water(s) of a discharge. Order No. 95-059 allowed receiving water DO concentrations in Lateral 5 (Harding Drain) to be as low as 5.0 mg/l, and required a minimum of 7.0 mg/l in the San Joaquin River. However, the Basin Plan specifies that the DO content of surface water bodies designated as having the beneficial uses of cold-water migration and warm water spawning habitat be a minimum of 7.0 mg/l. Therefore, this permit now requires that all receiving waters maintain a minimum DO concentration of 7.0 mg/l. Review of past receiving water monitoring conducted by the Discharger has shown DO levels in Harding Drain and the San Joaquin River to have on occasion dropped below the minimum levels as required by the Basin Plan and Order No. 95-059. Tertiary treatment will substantially lower effluent BOD levels and therefore allow the Discharger to maintain routine compliance with the new receiving water limitations contained in this Order. This Order includes interim effluent limitations for BOD and TSS that reflect the effluent limits in Order No. 95-059. These interim limits will allow the Discharger time to construct its tertiary treatment system and achieve compliance with more stringent effluent limits for BOD and TSS and the new minimum DO standard for the effluent and receiving waters of 7.0 mg/l. The Discharger is also required to conduct a receiving water study, as detailed in Provision **G.9**, to confirm whether the proposed tertiary treatment effluent limitations are fully protective of the receiving water DO limitations. Because this permit includes a DO limitation as a new effluent limit and because it is unknown if the discharge will comply with the new DO interim effluent limit, a time schedule has been included in Provision G.9. to allow time for evaluation of effluent quality and corrective measures if necessary.

EFFLUENT LIMITATIONS CONTAINED IN THIS PERMIT

22. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. This prohibition in the Basin Plan is known as the narrative toxicity objective. Federal regulations contained in 40 CFR 122.44 (d)(1)(i) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. For determining whether there is reasonable potential for an excursion above a narrative objective such as the narrative toxicity objective, 40 CFR 122.44(d)(vi) prescribes the use of one of three methods. The Regional Board used the second method (described in 40 CFR 122.44(d)(vi)(B)) for determining reasonable potential, which relies on USEPA recommended criteria and other information. The Board chose this method because USEPA's recommended ambient water quality criteria and the other criteria for the constituents listed below (aluminum, ammonia, chlorine, copper, cyanide, electrical conductivity, total dissolved solids, iron, manganese, mercury, molybdenum, tributyltin,

zinc, and total trihalomethanes) have been developed using methodologies that are subject to public review, as is the individual recommended criteria guidance document. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above water quality objectives and/or standards for aluminum, ammonia, chlorine, copper, cyanide, electrical conductivity/total dissolved solids, iron, manganese, molybdenum, tributyltin and zinc. Following are the specific findings for each of these effluent limitations:

a. The US EPA has developed Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life for **aluminum** which includes a criteria maximum concentration (CMC) of 750 µg/l, which is a one-hour average concentration, or acute toxicity criteria, and a criteria continuous concentration (CCC) of 87 µg/l, which is a 4-day average concentration and is considered the chronic toxicity criteria. The Discharger's monitoring since February 1995 has shown effluent aluminum concentrations that have exceeded US EPA's criteria. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts and US EPA's criteria for prevention of acute and chronic toxicity are numerical criteria, which are protective of the Basin Plan's narrative criteria. Based on information submitted as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for aluminum. Therefore, effluent limitations for aluminum are included in this Order that are protective of the beneficial uses of the receiving waters and are based on US EPA's Ambient Water Quality Criteria. Because the Discharger has exceeded the chronic toxicity water quality criteria on several occasions, and there is the potential for continued violations of the effluent limitations included in this permit, a time schedule to achieve compliance with the effluent limitations for aluminum will be considered in a separate Order.

b. The Discharger has conducted effluent monitoring which historically has resulted in acute and chronic bioassay violations. Based on these historical bioassay violations, the Discharger was required by Order No. 95-059 to conduct a Toxicity Identification Evaluation (TIE). The purpose of this TIE was to determine which constituents were causing effluent toxicity. The TIE requirement in Order No. 95-059 also stipulated that the Order be reopened and effluent limitations included based on results of the study. The TIE conducted by the Discharger concluded that elevated levels of **ammonia** in its effluent were causing acute and chronic bioassay test failures. Effluent limits for ammonia were not included in Order No. 95-059 at the conclusion of the TIE as that was deferred until the upcoming revision of the Order.

Acute and chronic bioassay problems continued through 1998 and on 30 April 1999, the Discharger was issued Cease and Desist (C&D) Order No. 99-050. C&D Order No. 99-050 was issued to the Discharger in large part due to those violations of acute and chronic bioassay limitations contained in Order No. 95-059. C&D Order No. 99-050 included a time schedule for the Discharger to achieve compliance with toxicity limitations included in Order No. 95-059. The Discharger is currently installing facilities that will achieve nitrification of

the effluent, therefore decreasing ammonia levels and eliminating the potential for acute and chronic toxicity due to ammonia in the effluent.

US EPA has developed Water Quality Criteria for Protection of Freshwater Aquatic Life for ammonia. The Discharger's reported monthly average ammonia and pH effluent levels have exceeded chronic criteria at least 29 out of 33 months since February 1995. The Discharger's monthly maximum ammonia levels and the corresponding pH levels of the effluent at those times indicate that acute criteria have been exceeded at least 10 months out of the 33 reported during the same time period. Also, as indicated previously, Lateral 5 (Harding Drain) is listed on the 303(d) list as water quality impaired due to elevated ammonia concentrations. The 303(d) list indicates that the sources of elevated ammonia in the lateral are both municipal and agricultural sources. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts and US EPA's criteria for prevention of acute and chronic toxicity are numerical criteria, which are protective of the Basin Plan's narrative criteria. Because Federal regulations require that effluent limitations must be established for pollutants that cause or contribute to an exceedance of water quality standards, and because it has been established that no dilution is available in the receiving water, effluent limitations for ammonia must be included in the permit for both chronic and acute toxicity.

Ammonia effluent limitations included in this permit are based on the US EPA Ambient Water Quality Criteria and are detailed in Attachment B and Attachment C. The acute limitation is a one-hour average effluent limitation and will vary based on pH of the effluent. The chronic criteria establish a thirty-day average effluent limitation and will vary based on pH and temperature of the effluent.

c. US EPA developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for **chlorine** that includes both CMC (acute) and CCC (chronic) criteria. The criteria for total chlorine are 0.011 mg/l, as a four-day average concentration, for protection against chronic toxicity and 0.019 mg/l, as a one-hour average concentration, for protection against acute toxicity. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts and US EPA's criteria for prevention of acute and chronic toxicity are numerical criteria, which are protective of the Basin Plan's narrative criteria. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Board finds that the discharge does have a reasonable potential to cause or contribute to cause a violation of the Basin Plan narrative prohibition against the discharge of toxic constituents in toxic concentrations for chlorine. Chlorine is used at the wastewater treatment plant as a disinfectant and, based on experience, has a reasonable potential to be discharged in toxic concentrations. Therefore, effluent limitations for chlorine are included in this permit that are protective of the beneficial uses of the receiving waters and are based on US EPA's water quality criteria.

d. US EPA developed Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life for **copper**, which includes both CMC (acute) and CCC (chronic) criteria, and these

criteria are included in the CTR. These criteria are dependent on the hardness of the water column. Monitoring results since February 1995 show that effluent copper concentrations have been detected on seven occasions. Of those seven effluent samples with detectable copper concentrations, at least three of the concentrations, using average effluent hardness concentrations, exceeded both CMC and CCC US EPA/CTR criteria. Based on the SIP's procedures for determining reasonable potential and information submitted by the Discharger as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the water quality criteria for copper which are included in the CTR. Therefore, effluent limitations for copper have been included in this Order. Effluent limitations for copper are protective of the beneficial uses of the receiving waters and are based on US EPA's CTR water quality criteria.

As allowed by Section 2.1 of the SIP, a time schedule is included in this Order to allow the Discharger to achieve and maintain compliance with their new effluent limitations for copper. Interim effluent limits for copper based on current facility performance will be included in this Order until such time that the Discharger is required to achieve compliance with its final water quality based effluent limits.

e. US EPA has developed Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life for **cyanide**, which includes a CMC (acute) criteria concentration, and a CCC (chronic) criteria concentration and are included in the CTR. Monitoring results since February 1995 show the City has had a single detection of cyanide in its effluent, which exceeded both CMC and CCC US EPA/CTR criteria for cyanide. Based on the SIP's procedures for determining reasonable potential and information submitted by the Discharger as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the water quality criteria for cyanide which are included in the CTR. Therefore, effluent limitations for cyanide have been included in this Order. This permit's effluent limits for cyanide are protective of the beneficial uses of the receiving waters and are based on US EPA's NTR/CTR water quality criteria.

As allowed by Section 2.1 of the SIP, a time schedule is included in this Order to allow the Discharger to achieve and maintain compliance with their new effluent limitations for cyanide. Interim effluent limits for cyanide based on current facility performance will be included in this Order until such time that the Discharger is required to achieve compliance with its final water quality based effluent limits.

f. Water quality criteria for salinity applicable to the Discharger's effluent discharge is the Agricultural Water Quality Goal for **electrical conductivity (EC)** of 700 µmhos/cm - [450 mg/l, **total dissolved solids (TDS)**]. Also applicable to the discharge are the Basin Plan's Water Quality Objectives for EC for the San Joaquin River. These criteria vary during the year and are set at 700 µmhos/cm (450 mg/l, TDS) from 1 April through 31 August and

1000 µmhos/cm (700 mg/l, TDS) from 1 September through 31 March. These objectives are based on extensive use of the San Joaquin River for agricultural supply and vary during the year based on irrigation seasons. As mentioned previously, the San Joaquin River in the vicinity of the Harding Drain's confluence is also on the Federal 303(d) list based on its water quality impairment in part due to elevated electrical conductivity concentrations. Because the San Joaquin River is on the Federal 303(d) list for EC/TDS, it is considered that there is no assimilative capacity available (dilution) to meet the applicable water quality standards for the river.

Review of the Discharger's monitoring since 1995 shows the overall monthly average effluent EC values have been approximately 800 µmhos/cm. The maximum monthly average EC value during this time period was 1093 µmhos/cm and the minimum recorded monthly average EC value was 425 µmhos/cm. The Discharger's recorded TDS levels have been on average 580 mg/l with a maximum recorded value of 690 mg/l. Based on this information the Discharger will exceed Agricultural Water Quality Goals for both EC and TDS.

This Order contains interim performance-based effluent limits that will allow the Discharger time to determine how best to control effluent dissolved salt levels. The interim effluent limits for EC and TDS are set at the maximum measured effluent concentrations. Interim effluent mass limits are established in this Order that cap the mass of salt discharged from the facility to the design average flow (per day) times the maximum reported TDS concentrations. The final mass and concentration limitations for the Discharger for EC and TDS will likely be determined with the completion of the TMDL for salt for the San Joaquin River.

The Discharger will be required to complete a study to identify sources and control dissolved salts discharged within the collection system. Once the study has been completed, the Board may determine that more stringent effluent limitations for EC and TDS are necessary. Provision G.6 requires the study and allows the Board to reopen the Order and modify effluent limitations for EC and TDS. The interim effluent limitations for EC and TDS will be in place until at least the completion of the required study and/or the completion of the TMDL. Because municipal sources are a very small part of the Valley salt load, it is unlikely that the TMDL will require salt reduction efforts beyond the source controls required by this permit.

g. Both US EPA and the California Department of Health Services (DHS) have developed a Drinking Water Standard Secondary MCL of 300 µg/l for **iron**. The Discharger's monitoring results since February 1995 show effluent iron concentrations detected on 15 of 18 sampling events. The effluent iron concentrations detected have exceeded the drinking water standard. Based on information submitted as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for iron, therefore an effluent limitation for iron has been included in this Order. The effluent limitation for iron included in this

Order is protective of the beneficial uses of the receiving waters and reflects the US EPA and DHS Drinking Water Standard Secondary MCL.

h. Both US EPA and the California Department of Health Services (DHS) have developed a Drinking Water Standard Primary MCL for **manganese** of 50 µg/l. The Discharger's monitoring results since February 1995 show effluent manganese concentrations detected on 14 of 17 sampling events. The effluent manganese concentrations detected have exceeded the drinking water standard. Based on information submitted as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for manganese, therefore an effluent limitation for manganese has been included in this Order. The effluent limitation for manganese included in this Order is protective of the beneficial uses of the receiving waters and reflects the US EPA and DHS Drinking Water Standard Primary MCL.

i. The current U.S. EPA/CTR water quality criteria for **mercury** for Protection of Human Health for consumption of both water and organisms is 0.050 µg/l. US EPA is currently reviewing the Ambient Water Quality Criteria for mercury and may recommend concentration criteria for Protection of Aquatic Life other than the current recommended criteria. The Sacramento-San Joaquin Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act for mercury. However, the water quality impairment is based on fish tissue concentration and not water column toxicity. Therefore, because the Delta has been listed as an impaired water body for mercury based on fish tissue concentrations, the discharge must not cause or contribute to increased mercury levels in fish tissue in the Delta waterways.

The Discharger's effluent sampling and analysis for mercury have consistently resulted in non-detect since February 1995. Detection levels of the analysis conducted were as low as 0.01 µg/l and as high as 10 µg/l. However, the accuracy of mercury analyses is questionable without implementing 'clean technique' for sample collection, handling, and analyses. The Discharger has not used the 'clean technique' in the determination of its effluent mercury concentrations. The discharge may contain mercury and therefore could have a reasonable potential to cause or contribute to an exceedance of narrative or numerical water quality objectives.

Determining reasonable potential based on the current sampling and analysis data is inappropriate at this time, as it would be based on sampling analysis that is of questionable quality. In order to determine if there is reasonable potential and if it is necessary to establish an interim effluent limit that will be in place until the completion of a TMDL for mercury in the Sacramento-San Joaquin Delta, the Discharger shall conduct a study of effluent mercury levels as required by Provision G.5. The study requires sampling and analysis that will provide information for the establishment of an interim mercury limit if necessary, and possibly a final effluent limit may be established. Provision G.5 includes a re-opener to

include an interim performance-based mass limit if necessary when appropriate effluent data has been collected. "Ultra clean techniques" shall be used in the mercury sampling, handling, and analytical procedures. In addition, the study requires the Discharger to identify sources of mercury discharged within the collection system.

The Board plans to adopt a TMDL for mercury in the Sacramento-San Joaquin Delta by December 2005. When the TMDL is complete, the Board will adopt appropriate water quality based concentration and mass loading effluent limits for point source discharges. Until the TMDL is completed and water quality based effluent limits are developed, an interim, performance based, mass loading limit may be prescribed through the reopening of the permit as described above.

j. The Basin Plan contains a water quality objective for **molybdenum** for the portion of the San Joaquin River that includes its confluence with the Harding Drain. The objectives for molybdenum are set at 15 µg/l as a daily maximum concentration and 10 µg/l as a monthly mean concentration. The Discharger's monitoring results since February 1995 show effluent molybdenum concentrations detected on eight of 19 sampling events. All effluent molybdenum concentrations detected have exceeded the Basin Plan's water quality objectives. Based on information submitted as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for molybdenum. Therefore, an effluent limitation for molybdenum has been included in this Order. The effluent limitation for molybdenum included in this Order is protective of the beneficial uses of the receiving waters and reflects the Basin Plan's water quality objective for this portion of the San Joaquin River. Because the Discharger has exceeded the water quality criteria on eight occasions, and there is the potential for continued violations of the effluent limitations included in this permit, a time schedule to achieve compliance with the effluent limitations for molybdenum will be considered in a separate Order.

k. US EPA developed Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life for **tributyltin**, which includes a CMC (acute) criteria, which is a one-hour average concentration, and a CCC (chronic) criteria, which is a 4-day average concentration. The Discharger's monitoring results since February 1995 show the Discharger has had detections of tributyltin in its effluent that have exceeded US EPA's CCC. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts and US EPA's criteria for prevention of acute and chronic toxicity are numerical criteria, which are protective of the Basin Plan's narrative criteria. Based on information submitted as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for tributyltin. Therefore, an effluent limitation for tributyltin has been included in this Order. The effluent limit for tributyltin included in this Order is protective of the beneficial uses of the receiving waters and reflects US EPA's ambient water quality criteria.

l. US EPA developed Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life for **zinc**, which includes a CMC (acute) criteria, which is a one-hour average concentration, and a CCC (chronic) criteria, which is a 4-day average concentration, and these criteria are included in the CTR. These criteria are dependent on the hardness of the water column. Monitoring results since February 1995 show that effluent zinc concentrations have been detected on ten occasions. Based on these monitoring results of effluent zinc concentrations and the corresponding effluent hardness near the time of sample collection, it has been determined that on at least two occasions effluent zinc concentrations have exceeded both CMC (acute) and CCC (chronic) US EPA/CTR criteria. Based on the SIP's procedures for determining reasonable potential and information submitted by the Discharger as part of the application, in studies, and in monitoring reports, the Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the water quality criteria for zinc which are included in the CTR. Therefore, effluent limitations for zinc have been included in this Order. Effluent limitations for zinc are protective of the beneficial uses of the receiving waters and are based on US EPA's CTR water quality criteria.

As allowed by Section 2.1 of the SIP, a time schedule is included in this Order to allow the Discharger to achieve and maintain compliance with their new effluent limitations for zinc. Interim effluent limits for zinc based on current facility performance will be included in this Order until such time that the Discharger is required to achieve compliance with its final water quality based effluent limits.

m. The Discharger conducted sampling and analysis of its effluent for **total trihalomethanes** (bromoform, bromodichloromethane, chloroform, and dibromochloromethane), as part of its quarterly monitoring for priority pollutants under its pretreatment program. Of the four trihalomethanes, the Discharger has detected chloroform and bromodichloromethane in its effluent. Chloroform has been detected 16 out of 17 sampling events since February 1995, ranging in concentrations from non-detect (lab analysis detection level of 1.0 µg/l) to 4.7 µg/l. The average concentration of those 16 detected concentrations was 3.0 µg/l. Bromodichloromethane has been detected two out of 17 sampling events since February 1995, and the two detected concentrations were 0.69 µg/l and 1.3 µg/l.

Applicable water quality criteria for trihalomethanes include the US EPA and DHS Drinking Water Standard Primary MCL of 100 µg/l. This criteria is applied to the sum of the total trihalomethane concentration of the effluent. The US EPA has also developed National Ambient Water Quality Criteria for Human Health Protection One-in-a-Million Cancer Risk Estimate for trihalomethanes that is constituent specific. These criteria for chloroform and bromodichloromethane are 5.7 µg/l and 0.27 µg/l, respectively. Bromodichloromethane has CTR human health protection criteria for consumption of water and aquatic organisms of 0.56 µg/l. The effluent has exceeded this CTR concentration limit. The drinking water standard criteria are being applied for trihalomethanes as these are established criteria that are protective

of drinking water supplies and are adequate for the protection of water quality in the Harding Drain and the San Joaquin River.

Based on review of the monitoring results, it has been determined that the Discharger's effluent discharge does not have the reasonable potential to cause or contribute to an in-stream excursion above the US EPA and DHS Primary MCL for trihalomethanes, therefore a permit limitation for total trihalomethanes has not been included in this Order. However, the Discharger's effluent discharge does have the reasonable potential to cause or contribute to an in-stream excursions above the bromodichloromethane CTR human health protection criteria for consumption of water and aquatic organisms and therefore the CTR criteria as an effluent limitation has been added to this permit.

As allowed by Section 2.1 of the SIP, a time schedule is included in this Order to allow the Discharger to achieve and maintain compliance with their new effluent limitations for Bromodichloromethane. Interim effluent limits for bromodichloromethane based on current facility performance will be included in this Order until such time that the Discharger is required to achieve compliance with its final water quality based effluent limits.

23. The Board must consider factors specified in the California Water Code (CWC) Section 13263, and if it adopts effluent limitations more stringent than those that would be dictated by numeric water quality objective in the Basin Plan then it must consider provisions of CWC Section 13241. The effluent limitations in the proposed waste discharge requirements are necessary to protect the beneficial uses prescribed in the Basin Plan. The Discharger presented cost estimates for the additional treatment technologies that would be capable of treating its wastewater to meet effluent limitations based on finding 22 of this Order. The Discharger states in its comments on the Tentative Order that in addition to coagulation and filtration of the wastewater, high lime treatment and possibly microfiltration / reverse osmosis treatment of the final effluent may be necessary. The total estimated project capital cost (in March 2001 dollars) ranges from 19.2 million dollars to 134 million dollars, and associated operation and maintenance cost range from 1 to 12 million dollars depending on the level of treatment. The Discharger also indicated that this project would require a 50 to 500 percent increase in residential sewer fees. The additional treatment technologies necessary to meet the more stringent effluent limitations required by the Basin Plan is limited to the total coliform and turbidity. The cost of tertiary treatment to meet those effluent limitations is at the lower end of the range of the estimated costs (estimated at $21 million and $1 million per year operation and maintenance. These estimated costs were considered by the Board prior to the adoption of this Order.

24. Federal regulations contained in 40 CFR 122.44(d)(1)(i) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. Provision G.4 of this Order includes the following:

a. requires the Discharger to provide information as to whether the levels of priority pollutants including CTR and NTR constituents, constituents for which drinking water maximum contaminant levels (MCLs) prescribed in the California Code of Regulations, including boron, Group A Pesticides, DDT, chlorpyrifos, diazinon, nitrates, and selenium in the discharge cause or contribute to an in-stream excursion above a water quality objective;

b. if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective, the Discharger is required to submit information to calculate effluent limitations for those constituents; and

c. allows the Board to reopen this Order and include as necessary either interim or final effluent limitations for those constituents. The Discharger's ultimate effluent limitations for boron, Group A Pesticides, DDT, chlorpyrifos, diazinon, and selenium will likely be determined with the completion of TMDLs for those constituents. The final effluent concentration limitations for those constituents as well as nitrates will potentially be based on the most stringent applicable water quality criteria.

25. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order provides for a discharge that supplies a volume and mass of pollutants (BOD, suspended solids, chlorine residual, temperature, and metals) to the Harding Drain and the San Joaquin River. Compliance with this Order will ensure that this discharge will not cause a violation of water quality objectives. The discharge allows wastewater utility service necessary to accommodate housing and economic expansion in the area, and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

26. Section 13263.6(a), California Water Code, requires that "the Regional Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the State Board or the Regional Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, and excursion above any numeric water quality objective".

The Board has adopted numeric receiving water objectives for boron, molybdenum, selenium and electrical conductivity in the Basin Plan. This Order contains effluent limitations for molybdenum and electrical conductivity that are reflective of the receiving water objectives contained in the Basin Plan. The available effluent water quality data for boron and selenium are not sufficient to determine if there is a reasonable potential to exceed the Basin Plan's water quality objectives. Therefore, this Order requires the Discharger to complete a study to conclusively determine if effluent boron and selenium concentrations have the reasonable potential to exceed objectives.

Effluent limitations may be included in this permit based on the results of the study and may be based on the Basin Plan's water quality objectives.

27. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to this discharge.

28. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA)(Public Resources Code Section 21100, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the CWC.

29. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

30. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

31. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect 50 days following permit adoption (effective 30 June 2001), provided the Regional Administrator of USEPA has no objections.

IT IS HEREBY ORDERED that Order No. 95-059 is rescinded and the City of Turlock, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater at a location or in a manner different from that described in Finding No. 2 and Finding No. 3 is prohibited.

2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A. 13, [See attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)"].

3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations:

1. The effluent shall not exceed the following limits:

Constituent	Unit	Monthly Average	Weekly Average	Monthly Median	Daily Maximum
BOD[1,2]	mg/l	10[3]	15[3]	–	20[3]
	lbs/day[4]	1668	2502	–	3336
Total Suspended Solids[2]	mg/l	10[3]	15[3]	–	20[3]
	lbs/day[4]	1668	2502	–	3336
Settleable Solids	ml/l	0.1	–	–	0.2
Total Coliform[2]	MPN/100 ml	–	–	2.2	240[5]
Turbidity[2]	NTU	2[6]	–	–	5[6]
Oil and Grease	mg/l	10	–	–	15
	lbs/day[4]	1668	–	–	2502
Iron	µg/l	300	–	–	–
	lbs/day[4]	50.0	–	–	–
Manganese	µg/l	50	–	–	–
	lbs/day[4]	8.34	–	–	–
Molybdenum	µg/l	10	–	–	15
	lbs/day[4]	1.67	–	–	2.50

1 5-day, 20°C biochemical oxygen demand (BOD).
2 Limits effective 1 May 2006.
3 To be ascertained by flow proportional 24-hour composite sample.
4 Based on a design treatment capacity of 20 mgd.
5 In a 30-day period, only a single sample may exceed 23 MPN/100 ml and no sample should exceed 240 MPN/100 ml.
6 The daily maximum of 5 NTU must not be exceeded 5% of the time or 10 NTU at any time within a 24-hour period. The daily average must not exceed 2 NTU.

Constituent	Unit	Daily Maximum[2]	Monthly Average
Copper[1]	µg/l	10.90	4.50
	lbs/day[4]	1.82	0.750
Cyanide[1]	µg/l	8.52	4.25
	lbs/day[4]	1.42	0.710
Zinc[1]	µg/l	93.80	31.50
	lbs/day[4]	15.6	5.25
Bromodichloromethane[1]	µg/l	1.13	0.56
	lbs/day[4]	0.19	0.09
Aluminum	µg/l	750	87
	lbs/day[4]	125	14.5
Tributyltin	µg/l	0.46	0.063
	lbs/day[4]	0.077	0.01
Ammonia as N	mg/l	Attachment C	Attachment B
	lbs/day[3]	See footnote 3	See footnote 3
Chlorine	mg/l	0.02	0.01
	lbs/day[4]	3.34	1.67

1 Effective 1 May 2006
2 Maximum concentration
3 Using the concentration in mg/l, determined from Attachment B or C calculate the pounds per day using the formula: x mg/l x 8.34 x 20 mgd where x = the measured concentration.
4 Based on a design treatment capacity of 20 mgd

2. Interim total coliform organism, BOD, TSS, copper and zinc effluent limits will be in effect through 1 May 2006. The interim effluent limits are as follows:

Constituent	Unit	Monthly Average	Weekly Average	Daily Maximum
BOD[1]	mg/l	30[2]	45[2]	90[2]
	lbs/day[3]	5004	7506	15,012
TSS	mg/l	30[2]	45[2]	90[2]
	lbs/day[3]	5004	7506	15,012
Total Coliform	MPN/100 ml	23[4]	--	500
Copper	µg/l	--	--	88
	lbs/day[3]	--	--	14.7
Zinc	µg/l	--	--	900
	lbs/day[3]	--	--	150.1
Cyanide	µg/l			33
	lbs/day[3]			5.5
Bromodichloromethane	µg/l			3.25
	lbs/day[3]			0.54

[1] 5-day, 20°C biochemical oxygen demand (BOD)
[2] To be ascertained by 24-hour composite samples.
[3] Based on an average dry weather flow capacity of 20 mgd.
[4] Monthly median value.

3. The effluent discharge shall meet or exceed a concentration of 5.0 mg/l for dissolved oxygen by **1 May 2002** and effective **1 May 2006** shall meet or exceed a concentration of 7.5 mg/l for dissolved oxygen.

4. Wastewater shall be oxidized, coagulated and filtered, or equivalent treatment provided effective **1 May 2006.**

5. The interim mass effluent limit for mercury shall be established, if necessary, based on the study required by Provision G.5 and will be applied per twelve months on a running average for the discharge to surface waters, subject to the conditions stated below:

   a. In calculating for compliance, the Discharger shall count all non-detect measures at one-half of the detection level and apply the monthly average flow from the sampled discharge. If compliance with the effluent limit is not attained due to the non-detect contribution, the Discharger will improve and implement available analytical capabilities and compliance will be evaluated with consideration of the detection limits.

   b. Twelve month mass loadings should be calculated for each calendar month. For monthly measures, calculate monthly loadings using average monthly flow and the average of all mercury analyses conducted that month. The Discharger shall submit a cumulative total of

mass loadings for the previous twelve months with each Self-Monitoring report. Compliance will be determined based on the previous 12-month moving averages over the previous twelve months of monitoring.

6. The interim effluent limits for electrical conductivity and total dissolved solids are as follows:

Constituent	Unit	Monthly Average	Annual Maximum
Electrical Conductivity	µmhos/cm	1100	--
Total Dissolved Solids	mg/l	690	--
	lbs/year[1]	--	42,000,000

[1] Based on the design average daily flows and maximum TDS concentrations mass discharge since 1995.

a. Twelve month mass loadings should be calculated for each calendar month. For monthly measures, calculate monthly loadings using average monthly flow and the average of all TDS analyses conducted that month. The Discharger shall submit a cumulative total of mass loadings for the previous twelve months with each Self-Monitoring Report. Compliance will be determined based on the previous 12-month moving averages over the previous 12 months of monitoring.

b. The effluent mass loading limit will be effective until this permit is re-opened based on results of the study required by Provision G.6, or one year after completion of a TMDL that has been approved by the Regional Board as a Basin Plan amendment and accepted by US EPA, whichever occurs last.

7. The arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

8. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

9. The average dry weather (May through October) discharge flow shall not exceed 20 mgd.

10. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay - - - - - - - - 70 %
Median for any three or more consecutive bioassays - - - - - - - - 90%

C. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. However, a receiving water condition not in

conformance with the limitation is not necessarily a violation of this Order. The Board may require an investigation to determine cause and culpability prior to asserting a violation has occurred. The discharge shall not cause the following in the receiving waters:

1. Concentrations of dissolved oxygen to fall below 5.0 mg/l prior to 1 May 2006 and 7.0 mg/l thereafter.

2. Oils, greases, waxes, or other material to form a visible film or coating on the water surface or on the stream bottom that cause nuisance or otherwise adversely effect beneficial uses.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Discoloration that causes nuisance or adversely effects beneficial uses.

5. Fungi, slimes, or other objectionable growths.

6. The 30-day average for turbidity to increase as follows:

   a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTU.

   b. More than 20 percent where natural turbidity is between 5 and 50 NTU.

   c. More than 10 NTU where natural turbidity is between 50 and 100 NTU.

   d. More than 10 percent where natural turbidity is greater than 100 NTU.

7. The normal ambient pH to fall below 6.5, exceed 8.5, or the 30-day average to change by more than 0.5 units.

8. The ambient temperature to increase more than 5°F.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

11. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

12. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

13. Violation of any applicable water quality standard for receiving waters adopted by the Board, the State Water Resources Control Board, pursuant to the CWA and regulations adopted thereunder.

14. Taste or odor producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

15. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.

D. Discharge Specifications (Emergency Storage Basin)

1. The emergency storage basin shall be used for emergency storage during plant upsets, to prevent discharge of wastewater that does not meet effluent limits, and for flood prevention.

2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

3. As a means of discerning compliance with Discharge Specification No. 2, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/l.

4. The effluent storage basin shall not have a pH less than 6.5 or greater than 8.5 for periods of greater than 72 hours.

5. The emergency storage basin shall be managed to prevent breeding of mosquitoes. In particular:

   a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface;

   b. Weeds shall be minimized; and

   c. Vegetation, debris, and dead algae shall not accumulate on the water surface.

6. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

7. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow). In no case shall wind/wave action cause overtopping of levees (freeboard of more than two feet may be necessary).

8. Discharge from the emergency storage basin to the Harding Drain shall meet all Effluent Limitations.

E. Groundwater Limitations:

1. The discharge, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality. Any incremental increase in waste constituent concentrations when compared to background, shall not cause or contribute to a violation of water quality objectives, unreasonably impact beneficial uses, or cause pollution or nuisance.

2. Any increase in total coliform organisms shall not exceed a most probable number of 2.2/100 ml over any seven-day period.

F. Solids Disposal:

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner that is consistent with Title 23, California Code of Regulations, Division 3, Chapter 15, and approved by the Executive Officer.

2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and US EPA Regional Administrator at least 90 days in advance of the change.

3. Use and disposal of sewage sludge shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

   If the State Water Resources Control Board and the Regional Water Quality Control Boards are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order.

4. The Discharger is encouraged to comply with *the Manual of Good Practice for Agricultural Land Application of Biosolids* developed by the California Water Environment Association.

5. By 1 October 2001, the Discharger shall submit a sludge disposal plan describing the annual volume of sludge generated by the plant and specifying the disposal practices.

G. Provisions:

1. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

2. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

3. TMDLs are in the process of being conducted or will eventually be conducted for various constituents along the Harding Drain, the San Joaquin River, and the Sacramento-San Joaquin Delta in the vicinity and/or downstream of the discharge. TMDLs are currently being conducted on the San Joaquin River for EC, boron, and selenium and TMDLs are being conducted on the Delta and the San Joaquin River for dissolved oxygen, mercury, diazinon and chlorpyrifos. Based on the completion of any of these TMDLs for the aforementioned receiving waters, and constituent load allocations being developed, this permit may be reopened and appropriate effluent limitations included or modified based on the results of a TMDL.

4. There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives for (1) priority pollutants including CTR and NTR constituents, and (2) constituents for which drinking water maximum contaminant levels (MCLs) are prescribed in the California Code of Regulations, including: Group A Pesticides [which include: aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene], chlorpyrifos, diazinon, DDT, boron, nitrates, and selenium. The Discharger shall comply with the following time schedule in conducting a study of these constituents' potential effects in surface waters:

Task	Compliance Date
Submit Workplan and Time Schedule	1 October 2001
Begin Study	1 December 2001
Complete Study	1 December 2002
Submit Study Report	1 April 2003

The Discharger shall submit to the Board on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Board by letter when it returns to compliance with the time schedule.

If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order will be reopened and effluent limitations added for the subject constituents.

5. The discharge may contain mercury and may have a reasonable potential to cause or contribute to an exceedance of narrative or numerical water quality objectives. The Discharger did not use "clean techniques" in the past for the mercury sample collection and analytical practices, and therefore a reasonable potential analysis based on current data that is of questionable quality is not appropriate at this time. In order to determine reasonable potential and if necessary establish an appropriate interim effluent limit that will be in place until the completion of a TMDL for mercury, the Discharger shall conduct a monitoring program. "Clean techniques" shall be used in the mercury sampling, handling, and analytical procedures. Because mercury is known to bioaccumulate in fish and is a pollutant that is causing impairment of the Sacramento-San Joaquin Delta, the discharge must not cause or contribute to increased mercury levels in fish tissue to meet the requirements of the anti-degradation policy described in SWRCB Resolution No. 68-16 and the anti-degradation provision in 40 CFR 131.12 (a)(1). Therefore, the Discharger must also develop a mercury source identification plan within six months after adoption of this Order. The purpose of the plan is to investigate the causes of, and identify possible corrective actions which could be taken if deemed necessary by the TMDL to control mercury loadings to the receiving waters. The plan will include a time schedule by which source identification efforts shall be implemented, including source identification and possible reduction activities through the Discharger's pretreatment program. The Discharger shall comply with the following compliance schedule to complete the plan including the monitoring program and study:

Task	Compliance Date
Submit Source Identification Plan and Time Schedule	1 October 2001
Begin Monitoring Program and Study as Outlined in the Source Identification plan	1 December 2001
Complete Monitoring Program and Study	1 December 2002
Submit Monitoring Program and Study Report	1 April 2003

The Discharger shall submit to the Board on or before each compliance date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Board by letter when it returns to compliance with the time schedule.

This Order may be reopened based on the results of the monitoring and an effluent limitation for mercury will be included.

6. The discharge contains dissolved salts (expressed as EC and TDS) which have a reasonable potential to cause or contribute to an exceedance of narrative or numerical water quality objectives in the receiving waters for salinity, in particular agricultural water quality criteria

goals. The San Joaquin River in the vicinity of the discharge is also included on the Federal 303(d) list as an impaired water body due to elevated EC levels. Regional Board staff is currently in the process of completing a TMDL for EC for the river and will eventually allocate salt loads to dischargers along the river. This Order therefore contains interim effluent limitations for EC and TDS that place concentration and mass limits on salts discharged into the receiving waters until at least the completion of the TMDL. The Discharger shall conduct a study of the potential effects of dissolved salts on the receiving waters. The study shall include an assessment of dissolved salts discharged into the wastewater system. The salt assessment shall be sufficient to determine the source of salt (industry, water supply, water softener, etc.) and recommend necessary control measures which could be taken if deemed necessary by the TMDL or to meet site specific objectives for the Harding Drain. The Discharger is also required to develop an implementation plan that details what salt control measures would be utilized that will enable the facility to meet its ultimate effluent limitations for dissolved salts. The Discharger shall comply with the following schedule for completion of its salt study:

Task	Compliance Date
Submit Work Plan and Time Schedule	1 October 2001
Begin Monitoring Program and Study	1 December 2001
Complete Monitoring Program and Study	1 December 2003
Submit Monitoring Program and Study Report	1 March 2004

The Discharger shall submit to the Board on or before each compliance date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Board by letter when it returns to compliance with the time schedule

7. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger must initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Board evaluation, conduct the TRE. This Order will be reopened and chronic toxicity limitations included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

8. The Discharger shall comply with the following time schedule to assure compliance with the effluent limitations contained in Effluent Limitation B.1 for copper and zinc. The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including construction progress if necessary, evaluating the effectiveness

of the implemented measures and assess whether additional measures are necessary to meet the time schedule. The schedule is as follows:

Task	Date Due
Submit Project Progress Reports	1 June, Annually
Full Compliance	**1 May 2006**

9. The Discharger shall comply with the following time schedule to assure compliance with interim Effluent Limitations for dissolved oxygen contained in B.3 and with the Effluent and Receiving water limitations for the level of treatment, total coliform organisms, turbidity, and dissolved oxygen contained in Effluent Limitations B.1, B.3, and B.4, and Receiving Water Limitation C.1:

Task	Date Due
Submit Project Progress Reports	1 June, Annually
Full Compliance with interim limit in B.3.	1 May 2002
Full Compliance	**1 May 2006**

The Discharger shall submit to the Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specified schedule date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Board by letter when it returns to compliance with the time schedule.

10. The Discharger shall comply with the following time schedule to conduct a study of the effluent, the Harding Drain and the San Joaquin River to confirm if the proposed tertiary treatment effluent limitations for BOD are adequately protective of downstream DO levels in the receiving waters. At a minimum, the study shall evaluate seasonal flows, temperature, and the DO and BOD levels of the effluent, the Harding Drain and the San Joaquin River. The study shall be accomplished in accordance with the following time schedule:

Task	Date Due
Submit Workplan and Time Schedule	1 September 2001
Establish Flow Monitoring Stations on Harding Drain and SJ River	1 November 2001
Begin Study	1 November 2001
Complete Study	1 April 2003
Submit Study Report	1 July 2003

The Discharger shall submit to the Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specified schedule date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Board by letter when it returns to compliance with the time schedule.

Based on the results of the study, this Order may be reopened and effluent limitations for BOD and dissolved oxygen modified.

11. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provision(s)".

12. Monitoring and Reporting Program No. 5-01-122, Attachments A, B, and C and the Fact sheet are a part of this Order.

13. The Discharger shall comply with Monitoring and Reporting Program No. 5-01-122, and any revisions thereto as ordered by the Executive Officer. When requested by US EPA, the Discharger shall complete and submit discharge monitoring reports. The submittal date shall be no later than the submittal date specified in Monitoring and Reporting Program No. 5-01-122.

14. This Order expires on **1 May 2006**, and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

15. The Discharger shall enforce the Pretreatment Standards promulgated under Sections 307(b), 307(c), and 307(d) of the Clean Water Act. The Discharger shall perform the pretreatment functions required by 40 CFR Part 403 including but not limited to:

    a. Adopting a legal authority required by 40 CFR 403.8(f)(1);

    b. Enforcing the Pretreatment Standards of 40 CFR 403.5 and 403.6;

    c. Implementing procedures to ensure compliance as required by 40 CFR 403.8(f)(2); and

    d. Providing funding and personnel for implementation and enforcement of the pretreatment program as required by 40 CFR 403.8(f)(3).

16. The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this permit. If the Discharger fails to perform the pretreatment functions, the Regional Water Quality Control Board (RWQCB), the State Water Resources Control Board (SWRCB) or the US Environmental Protection Agency (USEPA) may take

enforcement actions against the Discharger as authorized by the Clean Water Act.

17. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

a. Waste which creates a fire or explosion hazard in the treatment works;

b. Waste which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

d. Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;

f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and

h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.

18. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or

b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

19. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).

20. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Board.

    To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the person(s) responsible for contact with the Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

21. The City may submit modeling and analysis to support dilution credit for one or more constituents, or may submit new site-specific studies adequately supporting application of adjustment factors in the form of water effects ratios. Based on the Regional Board's review and approval of such analyses, this permit may be reopened, at the request of the Discharger, and appropriate dilution credits or adjustment factors applied and effluent limitations modified.

I, GARY M. CARLTON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 May 2001.

GARY M. CARLTON, Executive Officer

AMENDED
GDN

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 5-01-122

NPDES NO. CA 0078948

FOR

CITY OF TURLOCK
WASTEWATER TREATMENT FACILITY
STANISLAUS COUNTY

Specific sample station locations shall be established under direction of the Board's staff, and a description of the stations shall be attached to this Order.

INFLUENT MONITORING

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent for the period sampled. Influent monitoring shall include at least the following:

Constituent	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
20°C BOD_5	mg/l, lbs/day	24 hr. Composite[1]	Daily
Total Suspended Solids	mg/l, lbs/day	24 hr. Composite[1]	Daily
Electrical Conductivity @ 25 °C	µmhos/cm	Grab	Daily
pH	pH units	Grab	Daily
Total Dissolved Solids	mg/l	Grab	Weekly
Hardness	mg/l	Grab	Monthly
Ammonia (as N)	mg/l	Grab	Weekly
Priority Pollutants	µg/l	As appropriate[1,2]	Semi-Annually

1 Composite samples shall be flow proportional.

2 Discharger must submit report outlining EPA test methods and detection limits for approval within 60 days of permit adoption. Report all peaks identified by the EPA test methods.

EFFLUENT MONITORING

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and quality of the

discharge. Samples collected from the outlet structure of ponds will be considered adequately composited. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

Constituent	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
Chlorine Residual	mg/l	Meter	Continuous
Turbidity[1]	NTU	Meter	Continuous
pH	pH units	Grab	Continuous
Temperature	°F	Grab	Daily
Dissolved Oxygen	mg/l	Grab	Weekly
20°C BOD_5	mg/l, lbs/day	24 hr. Composite[2]	Daily
Total Suspended Solids	mg/l, lbs/day	24 hr. Composite[2]	Daily
Total Coliform Organisms	MPN/100 ml	Grab	Daily
Settleable Solids	ml/l	Grab	Daily
Total Dissolved Solids	mg/l, lbs/day	Grab	2 Times Weekly
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Daily
Ammonia (as N)[3]	mg/l, lbs/day	Grab	2 Times Weekly
Oil and Grease	mg/l	Grab	2 Times Monthly
MBAS[4]	mg/l	Grab	2 Times Monthly
Hardness	mg/l	24 hr. Composite[2]	Monthly
Aluminum (total)	µg/l, lbs/day	24 hr. Composite[2]	Monthly
Copper[7] (total and dissolved)	µg/l, lbs/day	24 hr. Composite[2]	Monthly
Cyanide (total)	µg/l, lbs/day	24 hr. Composite[2]	Monthly
Iron (total)	µg/l, lbs/day	24 hr. Composite[2]	Monthly
Manganese (total)	µg/l, lbs/day	24 hr. Composite[2]	Monthly

Constituent	Units	Type of Sample	Sampling Frequency
Mercury	µg/l, lbs/day	24 hr Composite[2,5]	Monthly
Molybdenum (total)	µg/l, lbs/day	24 hr. Composite[2]	Monthly
Nitrates (as N)	mg/l, lbs/day	24 hr. Composite[2]	Monthly
Tributyltin	µg/l, lbs/day	24 hr. Composite[2]	Monthly
Zinc[7] (total)	µg/l, lbs/day	24 hr. Composite[2]	Monthly
Boron	µg/l	24 hr. Composite[2]	Quarterly
Chlorpyrifos	µg/l	24 hr. Composite[2]	Quarterly
Diazinon	µg/l	24 hr. Composite[2]	Quarterly
Selenium[13]	µg/l	24 hr. Composite[2]	Quarterly
Acute Toxicity[6]	% Survival	Flow-through[12]	Quarterly/Monthly
Priority Pollutants[7,8]	µg/l	As appropriate[9,10]	Quarterly
Standard Minerals[11]	mg/l	24 hr. Composite[2]	Annually

1 Turbidity monitoring to begin 1 May 2006
2 Samples shall be flow proportional composite samples.
3 Temperature and pH shall be collected at the same time as the ammonia sample.
4 Methylene Blue Activated Substances
5 Utilizing "clean technique", sample collection and EPA Test Method 1669 or 1631, or later amendment
6 The sampling frequency shall increase to monthly effective 1 January 2003. The acute bioassays samples shall be analyzed using EPA/600/4-90/027F, Fourth Edition, or later amendment with Board staff approval. Temperature and pH shall be recorded at the time of bioassay sample collection. Test species shall be fathead minnows (Pimephales promelas). No pH adjustment may be utilized during the testing process.
7 Hardness data shall be collected concurrent with copper, zinc, and Priority Pollutant samples.
8 Discharger must submit report outlining EPA test methods and detection limits for approval within 60 days of permit adoption. Discharger must report all peaks identified by the EPA test methods.
9 Volatile samples shall be grab samples, the remainder shall be 24-hour composite samples.
10 Composite samples shall be flow proportional.
11 Standard minerals shall include all major cations and anions and include a verification that the analysis is complete (i.e., cation/anion balance).
12 Flow-through bioassays to begin by 1 May 2006 for continuous sampling frequency.
13 Use EPA test method 7742, or later amendment for Selenium.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after

which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water monitoring shall include at least the following:

Station	Description
R-1	TID Lateral 5/ Ceres Drain at Prairie Flower Road (above Hodges Drop)
R-2	Harding Drain 100 feet below Hodges Drop
R-3	San Joaquin River 500 feet above Harding Drain
R-4*	San Joaquin River 1000 feet below Harding Drain

Constituents	Units	Station	Sampling Frequency
Flow[1]	mgd	R-1, R-3	Weekly
Dissolved Oxygen	mg/l	R-1, R-2, R-3, R-4	Weekly
pH	pH units	R-1, R-2, R-3, R-4	Weekly
Turbidity	NTU	R-1, R-2, R-3, R-4	Weekly
Temperature	°F (°C)	R-1, R-2, R-3, R-4	Weekly
Electrical Conductivity @ 25°C	µmhos/cm	R-1, R-2, R-3, R-4	Weekly
Ammonia (as N)[2]	mg/l	R-1, R-2, R-3, R-4	Weekly
Fecal Coliform Organisms	MPN/100 ml	R-1, R-2, R-3, R-4	Quarterly
Diazinon	µg/l	R-1, R-2, R-3, R-4	Quarterly
Chlorpyrifos	µg/l	R-1, R-2, R-3, R-4	Quarterly
Priority Pollutants[3]	µg/l	R-1, R-2, R-3, R-4	Semi-Annually

1 Flow monitoring of Harding Drain shall be established in accordance with the time schedule in Provision G.10.

2 Temperature and pH shall be determined at the time of sample collection for ammonia.

3 Discharger must submit report outlining EPA test methods and detection limits for approval within 60 days of permit adoption. Discharger must report all peaks identified by EPA test methods.

* Station R-4 location shall be 1000 feet downstream or at a location, proposed by the Discharger and approved by the Board's Executive Officer, nearest R-4 where access can be reasonably achieved.

Constituents with weekly sampling frequency may be reduced to monthly at Stations R-3 and R-4 when the San Joaquin River is at "monitor stage" (river elevation is at 48.0 feet (15,242 cfs) at the West Main Bridge near Patterson (SJP) gaging station) and may be discontinued while the San Joaquin River is at "flood stage" (river elevation is at 54.7 feet at the West Main Bridge near Patterson (SJP) gaging station).

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-1, R-2, R-3, and R-4. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the Harding Drain and the San Joaquin River. The testing shall be conducted as specified in EPA 600/4-91/002. Chronic toxicity samples shall be collected at the discharge from the treatment plant prior to the effluent entering Harding Drain. Receiving water samples shall be taken from Harding Drain upstream of the City's effluent discharge. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. The effluent tests must be conducted with concurrent reference toxicant tests. Monthly laboratory reference toxicant tests may be substituted upon approval. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species:	*Pimephales promelas, Ceriodaphnia dubia,* and *Selenastrum capricornutum*
Frequency:	Once per quarter, four quarters per year

Dilution Series:

	Dilutions (%)					Controls	
	100	50	25	12.5	6.25	Harding Drain Water	Lab Water
% WWTP Effluent	100	50	25	12.5	6.25	0	0
% Dilution Water[1]	0	50	75	87.5	93.75	100	0
% Lab Water	0	0	0	0	0	0	100

[1] Dilution water shall be receiving water from Harding Drain taken upstream from the appropriate discharge points.

EMERGENCY STORAGE BASIN MONITORING

When in use, the emergency storage basin shall be monitored for at least the following:

Constituent	Units	Sampling Frequency
Freeboard	Feet	Daily
pH	pH units	3 X Weekly
Electrical Conductivity	µmhos/cm	Weekly
Odors	Observation	Weekly
Levee Condition	Observation	Weekly
Dissolved Oxygen	mg/l	Weekly

SLUDGE MONITORING

A composite sample of sludge shall be collected annually in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, (or most recent edition), and tested for the following metals:

Arsenic	Cadmium	Chromium	Copper	Lead
Mercury	Molybdenum	Nickel	Selenium	Zinc

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

1. **Within 90 days of the effective date of this Order, and annually by 30 January thereafter,** the Discharger shall submit:

   a. Annual sludge production in dry tons and percent solids.

   b. A schematic diagram showing sludge handling facilities and a solids flow diagram.

   c. Depth of application and drying time for sludge drying beds.

   d. A description of disposal methods, including the following information related to the disposal methods used at the facility. If more than one method is used, include the percentage of annual sludge production disposed by each method.

      *(1) For **landfill disposal**, include (1) the Regional Board's WDR numbers that regulate the landfill(s) used, (2) the present classifications of the landfill(s) used, and (3) the names and locations of the facilities receiving sludge.*

      *(2) For **land application**, include (1) the location of the site(s), (2) the Regional Board's WDR numbers that regulate the site(s), (3) the application rate in lbs/acre/year (specify wet or dry), and (4) subsequent uses of the land.*

      *(3) For **incineration**, include (1) the names and locations of the site(s) where sludge incineration occurs, (2) the Regional Board's WDR numbers that regulate the site(s), (3) the disposal method of ash, and (4) the names and locations of facilities receiving ash (if applicable).*

      *(4) For **composting**, include (1) the location of the site(s), and (2) the Regional Board's WDR numbers that regulate the site(s).*

Within 90 days of the effective date of this Order, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). All sludge samples taken from digesters ands placed in sludge drying / holding facilities shall be a composite of a minimum of twelve (12) discrete samples taken at equal time intervals over 24 hours. Suggested methods for analysis of sludge are provided in EPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following:

Constituents[1]	Units	Sampling Frequency
Standard Minerals	mg/l	Two times per year
Electrical Conductivity @ 25°C	µmhos/cm	Two times per year
Total Dissolved Solids	mg/l	Two times per year

[1] If the water supply is from more than one source, the results shall be reported as a weighted average and include copies of supporting calculations.

GROUNDWATER MONITORING

The Discharger shall develop a groundwater monitoring program to determine whether waste storage units are impacting underlying groundwater. Groundwater monitoring wells shall be established by 1 November 2001, to assess the groundwater quality and gradient beneath the emergency storage basins and the sludge drying beds. Prior to construction, plans and specifications for ground water monitoring wells shall be submitted to Board staff for review and approval. Wells shall comply with requirements of the Department of Water Resources.

Constituents	Units	Sampling Frequency
Ground water elevation[1]	feet	Quarterly
Electrical conductivity	µmhos/cm	Quarterly
Total Dissolved Solids	mg/l	Quarterly
pH	pH units	Quarterly
Coliform organisms	MPN/ 100 ml	Quarterly
Nitrates (as N)	mg/l	Quarterly
Standard Minerals	µg/l	Annually

[1] The groundwater elevation shall be used to calculate the direction and gradient of ground water flow, which must be reported.

REPORTING

Monitoring results shall be submitted to the Regional Board by the **first day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Suspended Solids, should be determined and recorded.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the WWTP (Standard Provision A.5).

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

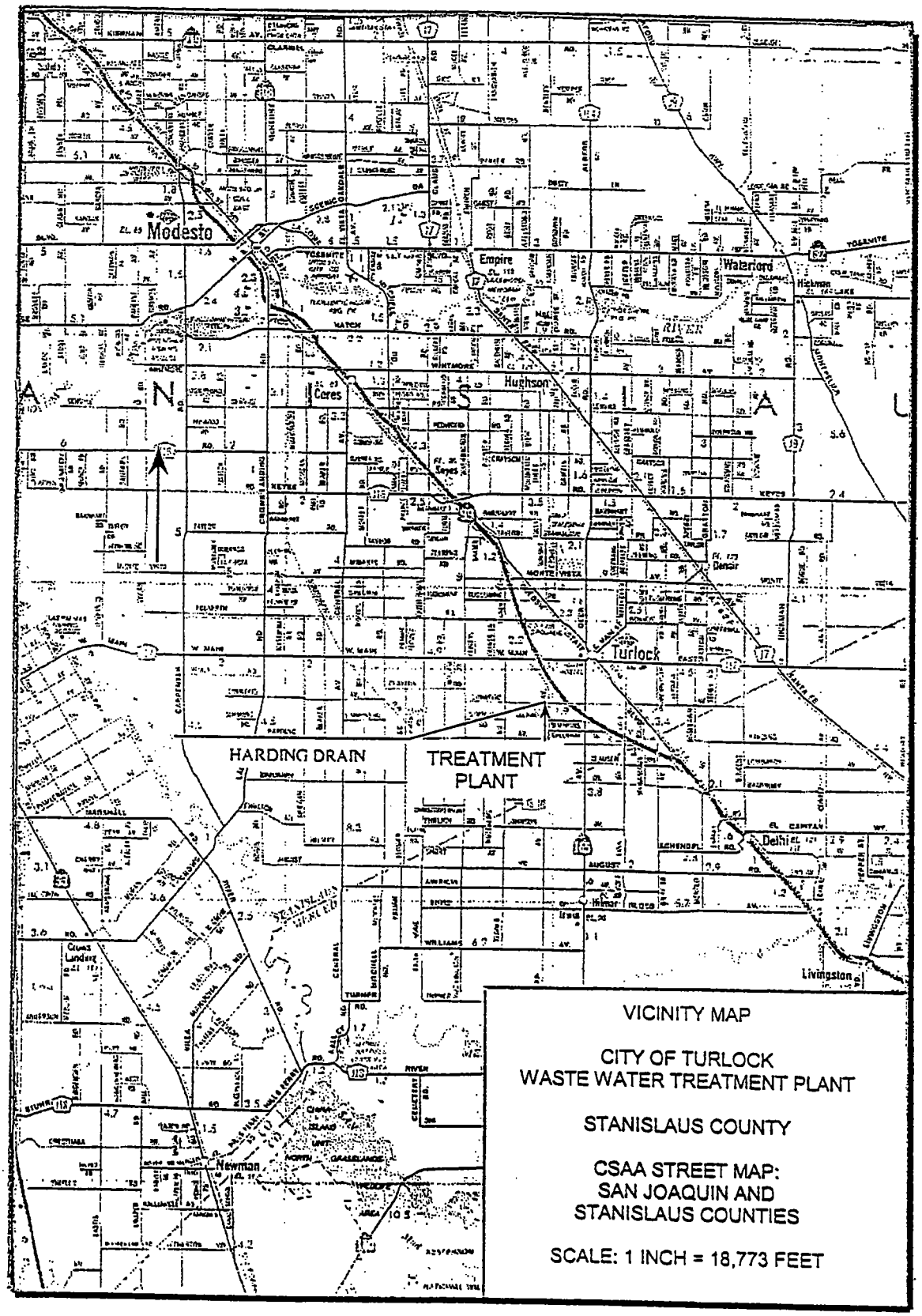
The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by: _____
GARY M. CARLTON, Executive Officer

11 May 2001
(Date)

GKV

ATTACHMENT A
VICINITY MAP



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-01-123

REQUIRING THE CITY OF TURLOCK
WASTEWATER TREATMENT FACILITY
TO CEASE AND DESIST
FROM DISCHARGING CONTRARY TO REQUIREMENTS

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds:

1. On 30 April 1999, the Board adopted Cease and Desist (C&D) Order No. 99-050 for the City of Turlock (hereafter Discharger) Wastewater Treatment Plant in Stanislaus County. C&D Order No. 99-050 directed the Discharger to comply with a time schedule to consistently achieve compliance with effluent limitations and receiving water limitations contained in its previous Waste Discharge Requirements (WDR) Order No. 95-059, NPDES Permit No. CA0078948. These included Effluent Limitations B.1 (which included limits for BOD, TSS, and total coliform) and B.5 (which included acute toxicity limitations) and Receiving Water Limitations E.13 and E.14 (which included chronic toxicity limitations).

2. On 11 May 2001, the Board adopted WDR Order No. 5-01-122, for the Discharger. WDR Order No. 5-01-122 serves as the update of WDR Order No. 95-059, regulating the discharge of approximately 10.3 million gallons per day (mgd) of treated domestic and industrial wastewater to Turlock Irrigation District Lateral No.5 Drain (hereafter referred to as the Harding Drain), which is tributary to the San Joaquin River. The design flow of the facility is 20 mgd.

3. This C&D Order rescinds and updates C&D Order No. 99-050, which referenced violations of the previous WDR Order No. 95-059.

4. WDR Order No. 5-01-122, Effluent Limitation No. B.2, includes interim effluent limits for BOD, TSS, and total coliform which are the same concentration limits that were included in WDR Order No. 95-059. The interim limits are in place until the Discharger completes an upgrade of its wastewater treatment facilities to tertiary treatment by 1 April 2006, as required in WDR Order No. 5-01-122. Tertiary treatment of the wastewater will improve the quality of the effluent by lowering BOD, TSS and total coliform levels. Effluent Limitation No. B.2 states:

   Interim total coliform organism, BOD and TSS effluent limits will be in effect through 1 April 2006. The interim effluent limits are as follows:

Constituent	Units	Monthly Average	Weekly Average	Daily Maximum
BOD[1]	mg/l	30[2]	45[2]	90[2]
	lbs/day[3]	5004	7506	15,012
TSS	mg/l	30[2]	45[2]	90[2]
	lbs/day[3]	5004	7506	15,012
Total Coliform	MPN/100 ml	23[4]	--	500

1 5-day, 20°C biochemical oxygen demand (BOD)
2 To be ascertained by 24-hour composite samples.
3 Based on an average dry weather flow capacity of 20 mgd.
4 Monthly median value.

5. The Discharger violated its permitted daily maximum coliform limitation in July 1996, April, June and November 1997, twice in March 1998, August 1998, twice in October 1998, and once in February 2000. Violations of TSS effluent limitations have been as follows: daily maximum violation in May 1997; monthly average, weekly average, and daily maximum violations in March 1998; and a violation of the monthly average in December 1998. Violations of BOD effluent limitations have been as follows: a violation of the monthly average limit in May 1997; a violation of the maximum daily limit in November 1997; and a violation of the monthly average limit in December 1998. The Discharger also had a violation of the daily maximum limit for settleable matter in August 1998 and February 2000. Some of these violations reportedly have resulted from operational changes in the wastewater treatment plant in attempts to reduce effluent toxicity described in Finding No. 8 below.

6. The Discharger has violated Order No. 95-059 and threatens to violate Order No. 5-01-122, Effluent Limitation B.2, which include interim effluent limitations for BOD, TSS, and total coliform. The Discharger can take immediate reasonable measures to achieve continuous compliance with Effluent Limitation B.2, of Order No. 5-01-122.

7. WDR Order No. 5-01-122, Effluent Limitation B.9 states:

   Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   Minimum for any one bioassay - - - - - - - - 70%
   Median for any three or more consecutive bioassays - - - - - - 90%

8. The Discharger's monitoring results for acute (96-hour) toxicity bioassay tests conducted on the effluent in May 1997, March 1998 and May 1998 resulted in test species survival of 50%, 0%, and 0%, respectively, in violation of the effluent limitation detailed above in Finding No. 7.

9. WDR Order No. 5-01-122, Receiving Water Limitations C.11 and C.12 state:

   C.11: Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded; and

   C.12: Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

10. The City's monitoring for chronic toxicity conducted on the effluent consistently have indicated results of significant reductions in both growth of fathead minnows and reproduction of ceriodaphnia dubia, in threatened violation of Receiving Water Limitations referenced above in Finding No. 9.

11. WDR Order No. 5-01-122, contains Effluent Limitations for ammonia as contained in B.1, which reads in part as follows:

Constituent	Unit	Monthly Average	Daily Maximum[2]
Ammonia (as N)	mg/l	Attachment B	Attachment C
	lbs/day[3]	See footnote 3	See footnote 3

1 Effective 1 May 2006
2 Maximum concentration
3 Using the concentration in mg/l, determined from Attachment B or C calculate the pounds per day using the formula: x µg/l x 8.34 x 20 mgd where x = the measured concentration
4 Based on a design treatment capacity of 20 mgd

12. The Discharger's reported monthly average ammonia and pH effluent levels have exceeded chronic criteria at least 29 out of 33 months since February 1995. The Discharger's monthly maximum ammonia levels and the corresponding pH levels of the effluent at those times indicate that acute criteria have been exceeded at least 10 months out of the 33 reported during the same time period. Review of data compiled since 1995 shows the monthly average effluent ammonia concentration has been approximately 13.5 mg/l and the highest recorded ammonia reading was 39.3 mg/l. These concentrations exceed the limitations contained in Order No. 5-01-122, which are included in that Order as Attachment B and Attachment C. These concentration limits are based on US EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life and vary based on the pH and temperature of the water.

13. The City conducted a Toxicity Identification Evaluation (TIE) in 1996 and determined that high effluent ammonia levels were the source of acute and chronic toxicity.

14. The Discharger is currently in the process of designing and constructing nitrification facilities at its wastewater plant that should substantially lower effluent ammonia levels. However, until construction of these facilities is complete, the Discharger threatens to violate effluent ammonia limitations and acute and chronic toxicity limitations included in WDR Order No. 5-01-122.

15. WDR Order No. 5-01-122, contains Effluent Limitations for molybdenum and aluminum as contained in B.1, which reads in part as follows:

Constituent	Unit	Monthly Average	Daily Maximum
Molybdenum	µg/l	10	15
	lbs/day[1]	1.67	2.50
Aluminum	µg/l	87	750
	lbs/day[1]	14.5	125

[1] Based on a design treatment capacity of 20 mgd

16. Quarterly monitoring reports submitted by the City since 1995 show effluent molybdenum concentrations detected on eight of 19 sampling events. The effluent molybdenum concentrations detected have ranged from 15 to 50 µg/l. Based on review of results of past monitoring, the Discharger threatens to violate its effluent limitations for molybdenum as described in Finding No. 15.

17. Quarterly monitoring reports submitted by the Discharger since 1995 show effluent aluminum concentrations detected on eight of fifteen sampling events. The effluent aluminum concentrations have ranged from 100 to 700 µg/l. Based on review of past monitoring, the Discharger threatens to violate its effluent limitations for aluminum as described in Finding No. 15.

18. The Discharger can take reasonable measures to achieve continuous compliance with: 1) ammonia, molybdenum, and aluminum limitations included in Effluent Limitation B.1; 2) acute toxicity limitations included in Effluent Limitation B.9; and 3) chronic toxicity limitations included in Receiving Water Limitations C.11 and C.12, as included in Order No. 5-01-122.

19. In accordance with California Water Code Section 13385(j)(3), the Regional Board finds that, based upon results of historical effluent monitoring, the Discharger is not able to consistently comply with the molybdenum and aluminum effluent limitations. The molybdenum and aluminum limitation are a new requirement that becomes applicable to the Permit after the effective date of adoption of the waste discharge requirements, and after

1 July 2000, for which new or modified control measures are necessary in order to comply with the limitation, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

Since the time schedule for completion of action necessary to achieve full compliance exceeds one year, interim requirements and dates for their achievement are included in this Order. This time schedule does not exceed five years. Source control actions can be taken to correct the violations that would otherwise be subject to mandatory penalties under California Water Code section 13385(h) and (i), and the Discharger can take reasonable measures to achieve compliance within five (5) years from the date the waste discharge requirements were required to be reviewed pursuant to Section 13380, by 24 March 2000. California Water Code section 13385 (j)(3)(D) requires that the Discharger prepare a molybdenum and aluminum pollution prevention plan pursuant to CWC Section 13263.3.

20. On 11 May 2001, in Sacramento, California, after due notice to the Discharger and all other affected persons, the Board conducted a public hearing at which evidence was received to consider a Cease and Desist Order to establish a time schedule to achieve compliance with waste discharge requirements.

21. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 2100, et seq.), in accordance with Section 15321 (a)(2), Title 14, California Code of Regulations.

22. Any person adversely affected by this action of the Board may petition the State Water Resources Control Board (State Board) to review the action. The petition must be received by the State Board Office of the Chief Counsel, P.O. Box 100, Sacramento, CA, 95812-0100, within 30 days of the date which the action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request.

IT IS HEREBY ORDERED THAT Order No. 99-050 is rescinded and:

1. The City of Turlock shall cease and desist from discharging wastes contrary to Waste Discharge Requirements Order No. 5-01-122, as detailed in Order No. 2, Order No. 3, and Order No. 4 below.

2. The City of Turlock shall immediately commence operations of their wastewater treatment facilities to achieve full compliance with Effluent Limitation B.2 as contained in WDRs Order No. 5-01-122, and as identified in Finding No. 4.

3. The City of Turlock shall comply with the following time schedule to assure compliance with the Effluent Limitations and the Receiving Water Limitations contained in Waste Discharge Requirements Order No. 5-01-122. Specifically, compliance with ammonia

limitations included in Effluent Limitation B.1, acute toxicity limitations included in Effluent Limitation B.9, and chronic toxicity limitations included in Receiving Water Limitations C.11 and C.12 as described in the above Findings must be achieved according to the following time schedule:

Task	Compliance Date
Progress Report[1] and Implementation Schedule	1 November 2001
Progress reports	1 May and 1 November of each year
Achieve Full Compliance	1 December 2003

[1] The progress report shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including construction progress, evaluate the effectiveness of the implemented measures and assess whether additional measures are necessary to meet the time schedule.

4. The City of Turlock shall comply with the following time schedule to assure compliance with the Effluent Limitations contained in Waste Discharge Requirements Order No. 5-01-122. Specifically, compliance with molybdenum, and aluminum limitations included in Effluent Limitation B.1, as described in the above Findings must be achieved according to the following time schedule:

Task	Compliance Date
Progress Report[1] and Implementation Schedule	1 November 2001
Progress reports	1 May and 1 November of each year
Submit CWC Section 13263.3 Pollution Prevention Plan	1 November 2003
Achieve Full Compliance (to avoid mandatory penalties per Water Code Section 13385	24 March 2005
Achieve Full Compliance (no later than)	1 May 2006

[1] The progress report shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including construction progress, evaluate the effectiveness of the implemented measures and assess whether additional measures are necessary to meet the time schedule.

APPENDIX D

WATER QUALITY DATA FOR THE HARDING DRAIN

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 00/09/01 Ending Yr/Mo./Day 00/09/30 State Code [06] NPDES Permit Number [0078948]

	BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER							
	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3								
4								
5								
6	9.3	7.5	6.9	7.3	2.1	3.9	65.0	66.0
7								
8								
9								
10								
11								
12								
13	8.5	7.3	7.5	7.1	4.2	4.9	64.0	70.0
14								
15								
16								
17								
18								
19								
20	7.4	6.9	7.4	7.4	1.4	11.6	70.0	75.0
21								
22								
23								
24								
25								
26								
27	8.3	4.0	7.3	7.4	1.8	9.7	69.0	72.0
28								
29								
30								
31								
TOT	33.5	25.7	29.1	29.2	9.5	30.1	268.0	283.0
HIGH	9.3	7.5	7.5	7.4	4.2	11.6	70.0	75.0
LOW	7.4	4.0	6.9	7.1	1.4	3.9	64.0	66.0
AVG	8.4	6.4	7.3	7.3	2.4	7.5	67.0	70.8

Principal Executive Officer or Rep. Cliff Martin Date 10-18-00

ility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 00/10/01 Ending Yr/Mo./Day 00/10/31

State Code [06]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

DAY	D.O. MG/L R-1	D.O. MG/L R-2	pH UNITS R-1	pH UNITS R-2	TURBIDITY N T U R-1	TURBIDITY N T U R-2	TEMPERATURE DEGREE C R-1	TEMPERATURE DEGREE C R-2
1								
2								
3								
4	8.9	7.0	7.7	7.6	1.9	7.7	66.0	68.0
5								
6								
7								
8								
9								
10								
11	7.8	4.6	7.4	7.3	2.6	11.3	62.0	65.0
12								
13								
14								
15								
16								
17								
18	7.4	7.8	7.5	7.5	1.7	4.5	65.0	67.0
19								
20								
21								
22								
23								
24								
25	9.5	8.5	7.5	7.4	6.9	8.3	63.0	64.0
26								
27								
28								
29								
30								
31								
TOT	33.6	27.9	30.1	29.8	13.1	31.8	256.0	264.0
HIGH	9.5	8.5	7.7	7.6	6.9	11.3	66.0	68.0
LOW	7.4	4.6	7.4	7.3	1.7	4.5	62.0	64.0
AVG	8.4	7.0	7.5	7.5	3.3	8.0	64.0	66.0

icipal Executive Officer or Rep. [signature] Date 11-9-00

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 00/11/01 Ending Yr/Mo./Day 00/11/30

State Code [06]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE C	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1	9.4	10.4	7.8	7.8	6.7	7.6	56.0	56.0
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15	10.1	8.2	8.1	7.8	1.0	2.9	58.0	59.0
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29	11.0	8.3	7.8	7.7	1.2	5.1	55.0	58.0
30								
31								
TOT	30.5	26.9	23.7	23.3	8.9	15.6	169.0	173.0
HIGH	11.0	10.4	8.1	7.8	6.7	7.6	58.0	59.0
LOW	9.4	8.2	7.8	7.7	1.0	2.9	55.0	56.0
AVG	10.2	9.0	7.9	7.8	3.0	5.2	56.3	57.7

Principal Executive Officer or Rep. [signature] Date 12-14-00

Facility I.D.	[5C500108001]	Reporting Period	Beginning	Yr/Mo./Day 00/12/01	Ending	Yr/Mo./Day 00/12/31	State Code [06]	NPDES Permit Number [0078948]

	BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER							
	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2		R - 2
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13	10.8	2.9	8.5	7.7	1.9	11.9	46.0	60.0
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27	11.2	3.8	8.4	7.5	0.7	8.9	38.0	59.0
28								
29								
30								
31								
TOT	22.0	6.7	16.9	15.2	2.6	20.8	84.0	119.0
HIGH	11.2	3.8	8.5	7.7	1.9	11.9	46.0	60.0
LOW	10.8	2.9	8.4	7.5	0.7	8.9	38.0	59.0
AVG	11.0	3.4	8.5	7.6	1.3	10.4	42.0	59.5

ncipal Executive Officer or Rep. _____ Date 1/16/01

Facility I.D. [5C500108001]

Reporting Period Begining Yr/Mo./Day 01/01/01 Ending Yr/Mo./Day 01/01/31

State Code [06]

NPDES Permit Number [0078948]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

	D.O. MG/L		pH UNITS		TURBIDITY N.T.U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3								
4								
5								
6								
7								
8								
9								
10	9.3	3.1	7.5	7.2	33.8	16.7	43.0	59.0
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24	11.7	3.0	8.6	7.4	0.6	18.1	54.0	64.0
25								
26								
27								
28								
29								
30								
31								
TOT	21.0	6.1	16.1	14.6	34.4	34.8	97.0	123.0
HIGH	11.7	3.1	8.6	7.4	33.8	18.1	54.0	64.0
LOW	9.3	3.0	7.5	7.2	0.6	16.7	43.0	59.0
AVG	10.5	3.1	8.1	7.3	17.2	17.4	48.5	61.5

Principal Executive Officer or Rep. [signature] Date 2-12-01

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 01/02/01 Ending Yr/Mo./Day 01/02/28 State Code [06] NPDES Permit Number [0078948]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

DAY	D.O. MG/L R-1	D.O. MG/L R-2	pH UNITS R-1	pH UNITS R-2	TURBIDITY N T U R-1	TURBIDITY N T U R-2	TEMPERATURE DEGREE F R-1	TEMPERATURE DEGREE F R-2
1								
2								
3								
4								
5								
6								
7	3.6	3.9	7.6	7.3	72.7	14.9	47.0	58.0
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21	5.9	4.3	7.3	7.3	2.9	9.1	59.0	62.0
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
TOT	9.5	8.2	14.9	14.6	75.6	24.0	106.0	120.0
HIGH	5.9	4.3	7.6	7.3	72.7	14.9	59.0	62.0
LOW	3.6	3.9	7.3	7.3	2.9	9.1	47.0	58.0
AVG	4.8	4.1	7.5	7.3	37.8	12.0	53.0	60.0

Principal Executive Officer or Rep. [signature] Date 3-13-01

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 01/03/01 Ending Yr/Mo./Day 01/03/31 State Code [06] NPDES Permit Number [0078948]

	BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER							
	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3								
4								
5								
6								
7	9.5	9.6	7.3	7.3	89.4	69.8	54.0	54.0
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21	6.6	4.0	7.7	7.3	3.7	10.8	64.0	67.0
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
TOT	16.1	13.6	15.0	14.6	93.1	80.6	118.0	121.0
HIGH	9.5	9.6	7.7	7.3	89.4	69.8	64.0	67.0
LOW	6.6	4.0	7.3	7.3	3.7	10.8	54.0	54.0
AVG	8.1	6.8	7.5	7.3	46.6	40.3	59.0	60.5

Principal Executive Officer or Rep. [signature] Date 4-17-01

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 01/04/01 Ending Yr/Mo./Day 01/04/30 State Code [06] NPDES Permit Number [0078948]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3								
4	9.6	10.0	7.5	7.2	9.3	9.3	62.0	61.0
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18	9.3	8.5	7.2	7.8	3.2	8.2	61.0	63.0
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
TOT	18.9	18.5	14.7	15.0	12.5	17.5	123.0	124.0
HIGH	9.6	10.0	7.5	7.8	9.3	9.3	62.0	63.0
LOW	9.3	8.5	7.2	7.2	3.2	8.2	61.0	61.0
AVG	9.5	9.3	7.4	7.5	6.3	8.8	61.5	62.0

Principal Executive Officer or Rep. [signature] Date 5-10-01

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 01/05/01 Ending Yr/Mo./Day 01/05/31

State Code [06]

NPDES Permit Number [0078948]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

	D.O. MG/L		pH UNITS		TURBIDITY N.T.U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2	9.8	9.2	7.4	7.4	2.6	4.5	61.0	63.0
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16	9.2	7.2	7.4	7.1	2.4	5.8	67.0	69.0
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30	9.6	6.9	7.3	7.3	4.2	6.3	71.0	72.0
31								
TOT	28.6	23.3	22.1	21.8	9.2	16.6	199.0	204.0
HIGH	9.8	9.2	7.4	7.4	4.2	6.3	71.0	72.0
LOW	9.2	6.9	7.3	7.1	2.4	4.5	61.0	63.0
AVG	9.5	7.8	7.4	7.3	3.1	5.5	66.3	68.0

Date 6-15-01

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 01/06/01 Ending Yr/Mo./Day 01/06/30 State Code [06] NPDES Permit Number [0078948]

	BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER							
	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13	9.6	7.3	7.7	7.3	6.4	10.6	71.0	70.0
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27	9.3	2.2	7.5	7.1	5.3	11.1	68.0	71.0
28								
29								
30								
31								
TOT	18.9	9.5	15.2	14.4	11.7	21.7	139.0	141.0
HIGH	9.6	7.3	7.7	7.3	6.4	11.1	71.0	71.0
LOW	9.3	2.2	7.5	7.1	5.3	10.6	68.0	70.0
AVG	9.5	4.8	7.6	7.2	5.9	10.9	69.5	70.5

P ipal Executive Officer or Rep. _____ Date 7-18-01

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 01/07/01 Ending Yr/Mo./Day 01/07/31

State Code [06]

NPDES Permit Number [0078948]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE (F)	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3	8.8	7.1	7.4	7.1	4.1	5.2	72.0	74.0
4								
5								
6								
7								
8								
9								
10								
11	9.2	8.0	7.2	7.1	4.6	5.2	68.0	71.0
12								
13								
14								
15								
16								
17								
18	9.3	3.3	7.4	7.1	4.3	8.6	68.0	72.0
19								
20								
21								
22								
23								
24								
25	9.1	9.4	7.4	7.3	6.1	5.4	69.0	70.0
26								
27								
28								
29								
30								
31								
TOT	36.4	27.8	29.4	28.6	19.1	24.4	277.0	287.0
HIGH	9.3	9.4	7.4	7.3	6.1	8.6	72.0	74.0
LOW	8.8	3.3	7.2	7.1	4.1	5.2	68.0	70.0
AVG	9.1	7.0	7.4	7.2	4.8	6.1	69.3	71.8

Principal Executive Officer or Rep. [signature] Date 8-13-01

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 01/08/01 Ending Yr/Mo./Day 01/08/31 State Code [06] NPDES Perm Number [0078948]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1	8.0	8.4	6.6	6.9	7.4	4.6	70.0	70.0
2								
3								
4								
5								
6								
7								
8	7.6	1.9	7.2	7.0	4.0	10.5	73.0	78.0
9								
10								
11								
12								
13								
14								
15	8.8	9.3	7.3	7.5	3.8	5.3	69.0	70.0
16								
17								
18								
19								
20								
21								
22	8.3	9.2	7.6	7.6	3.6	4.2	68.0	68.0
23								
24								
25								
26								
27								
28								
29	8.0	8.9	6.8	7.2	5.5	4.9	76.0	75.0
30								
31								
TOT	40.7	37.7	35.5	36.2	24.3	29.5	356.0	361.0
HIGH	8.8	9.3	7.6	7.6	7.4	10.5	76.0	78.0
LOW	7.6	1.9	6.6	6.9	3.6	4.2	68.0	68.0
AVG	8.1	7.5	7.1	7.2	4.9	5.9	71.2	72.2

Principal Executive Officer or Rep. [signature] Date 9-17-01

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 01/09/01 Ending Yr/Mo./Day 01/09/30

State Code [06]

NPDES Permit Number [0078948]

BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER

	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3								
4								
5	9.3	9.8	7.1	7.3	4.2	4.6	70.0	70.0
6								
7								
8								
9								
10								
11								
12	8.6	3.5	7.8	7.3	2.8	13.5	70.0	74.0
13								
14								
15								
16								
17								
18								
19	8.2	7.5	7.5	7.5	2.2	3.5	75.0	70.0
20								
21								
22								
23								
24								
25								
26	7.9	8.7	7.4	7.5	1.6	5.3	67.0	68.0
27								
28								
29								
30								
31								
TOT	34.0	29.5	29.8	29.6	10.8	26.9	282.0	282.0
HIGH	9.3	9.8	7.8	7.5	4.2	13.5	75.0	74.0
LOW	7.9	3.5	7.1	7.3	1.6	3.5	67.0	68.0
AVG	8.5	7.4	7.5	7.4	2.7	6.7	70.5	70.5

Principal Executive Officer or Rep. _____ Date 10-15-01

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 01/10/01 Ending Yr/Mo./Day 01/10/31

State Code [06]

NPDES Permit Number [0078948]

	BI - WEEKLY NOVEMBER THRU JUNE AND WEEKLY JULY THRU OCTOBER							
	D.O. MG/L		pH UNITS		TURBIDITY N T U		TEMPERATURE DEGREE F	
DAY	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2	R - 1	R - 2
1								
2								
3	7.7	8.2	7.4	7.5	2.8	3.3	70.0	72.0
4								
5								
6								
7								
8								
9								
10	8.9	7.3	7.6	7.5	2.7	5.5	62.0	69.0
11								
12								
13								
14								
15								
16								
17	9.5	6.3	7.6	7.4	3.6	6.8	68.0	72.0
18								
19								
20								
21								
22								
23								
24	9.8	6.8	7.7	7.4	3.7	3.9	62.0	64.0
25								
26								
27								
28								
29								
30								
31	9.1	6.8	7.6	7.3	2.7	5.1	62.0	66.0
TOT	45.0	35.4	37.9	37.1	15.5	24.6	324.0	343.0
HIGH	9.8	8.2	7.7	7.5	3.7	6.8	70.0	72.0
LOW	7.7	6.3	7.4	7.3	2.7	3.3	62.0	64.0
AVG	9.0	7.1	7.6	7.4	3.1	4.9	64.8	68.6

Principal Executive Officer or Rep

Date 11-14-01

Facility I.D. [5C500108001]

Reporting Period Begining Yr/Mo./Day 01/11/01 Ending Yr/Mo./Day 01/11/30

State Code 06

NPDES Permit # 0078948

	DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
	1														
	2														
	3														
	4														
	5														
	6														
	7	9.2	7.4	8.8	8.4	7.8	7.4	7.8	7.4	0.9	4.9	27.2	22.7		533
	8														
	9														
	10														
	11														
	12														
	13														
	14	6.8	7.7	8.5	8	7.6	7.5	7.8	7.7	10.8	23.5	36.1	26.3		592.7
	15														
	16														
	17														
	18														
	19														
	20														
	21	9.8	6.3	8.8	8.3	7.6	7.2	7.8	7.6	1.3	32	26	17.4		533.9
	22														
	23														
	24														
	25														
	26														
	27														
	28			9.3	9.5			7.7	7.8			23.5	21.7		518.9
	29														
	30														
	31														
	TOT	25.8	21.4	35.4	34.2	23.0	22.1	31.1	30.5	13.0	60.4	112.8	88.1		2178.5
	HIGH	9.8	7.7	9.3	9.5	7.8	7.5	7.8	7.8	10.8	32.0	36.1	26.3		592.7
	LOW	6.8	6.3	8.5	8.0	7.6	7.2	7.7	7.4	0.9	4.9	23.5	17.4		518.9
	AVG	8.6	7.1	8.9	8.6	7.7	7.4	7.8	7.6	4.3	20.1	28.2	22.0		544.6
MONTHLY AVG	LIMIT														
7-DAY AVG	LIMIT														
DAILY MIN	LIMIT		<5.0		<5.0										

Principal Executive Officer or Representative _____ Date 02 02 01

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 01/11/01 Ending Yr/Mo./Day 01/11/30 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6																
7	60	66	58	60	633	753	750	780	0.4	2.4	0.5	0.7				
8																
9																
10																
11																
12																
13																
14	60	64	62	62	397	560	780	800	0.7	2.8	0.3	0.3				
15																
16																
17																
18																
19																
20																
21	62	65	62	62	1030	952	965	1040	0.9	8.7	0.5	1.1				
22																
23																
24																
25																
26																
27																
28			53	54			970	990			0.7	0.7				
29																
30																
31																
TOT	182.0	195.0	235.0	238.0	2060.0	2265.0	3465.0	3610.0	2.0	13.9	2.0	2.8				
HIGH	62.0	66.0	62.0	62.0	1030.0	952.0	970.0	1040.0	0.9	8.7	0.7	1.1				
LOW	60.0	64.0	53.0	54.0	397.0	560.0	750.0	780.0	0.4	2.4	0.3	0.3				
AVG	60.7	65.0	58.8	59.5	686.7	755.0	866.3	902.5	0.7	4.6	0.5	0.7				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Date 12-23-01

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 01/11/01 Ending Yr/Mo./Day 01/11/30 State Code 06 NPDES Permit # 0078948

	DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants R-1,2,3,4 Influent Semi-annual	Effluent Quarterly	Semi-annual grab	Potable Water Semi-Annual Samples T.D.S. mg/L	E.C. uHoms/cm2	General Mineral mg/L		
	1																
	2																
	3																
	4																
	5												222	251			
	6																
	7																
	8																
	9																
	10																
	11																
	12																
	13																
	14												258	260			
	15																
	16																
	17																
	18																
	19												182	270			
	20																
	21																
	22																
	23																
	24																
	25																
	26																
	27																
	28																
	29																
	30																
	31																
	TOT												662.0	781.0			
	HIGH												258.0	270.0			
	LOW												182.0	251.0			
	AVG												220.7	260.3			
MONTHLY AVG	LIMIT																
7-DAY AVG	LIMIT																
DAILY MAX	LIMIT																

I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 01/12/01 Ending Yr/Mo./Day 01/12/31 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weely Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
1														
2														
3														
4														
5	8.1	8.9	9.8	9.6	7.6	7.4	7.7	7.7	7.4	8.2	28.5	32.7	3.8	560.0
6														
7														
8														
9														
10														
11														
12	13.8	7.1	10.8	10.4	8.5	7.5	7.4	7.7	1.1	6.4	17.8	10.4	0.0	512.0
13														
14														
15														
16														
17														
18														
19		7.4	10.7	10.4		7.3	7.8	7.7		4.8	17.8	13.9	0.0	392.0
20														
21														
22														
23														
24														
25														
26	8.4	6.9	10.2	10.4	7.2	7.2	7.4	7.5	12.4	3.2	20.9	20.1	5.8	428.0
27														
28														
29														
30														
31														
TOT	30.3	30.3	41.5	40.8	23.3	29.4	30.3	30.6	20.9	22.6	85.0	77.1		
HIGH	13.8	8.9	10.8	10.4	8.5	7.5	7.8	7.7	12.4	8.2	28.5	32.7		
LOW	8.1	6.9	9.8	9.6	7.2	7.2	7.4	7.5	1.1	3.2	17.8	10.4		
AVG	10.1	7.6	10.4	10.2	7.8	7.4	7.6	7.7	7.0	5.7	21.3	19.3		
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

Principal Executive Officer or Representative _____ Date 1/22/02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 01/12/01 Ending Yr/Mo./Day 01/12/31 State Code 06 NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F R-1	R-2	R-3	R-4	Electrical Conductivity Weekly Grab umhos/cm R-1	R-2	R-3	R-4	Ammonia as N Weekly Grab mg/l R-1	R-2	R-3	R-4	Fecal Coliform Quarterly grab MPN/100ml R-1	R-2	R-3	R-4
1																
2																
3																
4																
5	54.0	56.0	50.0	50.0	506.0	638.0	963.0	978.0	0.8	4.7	0.4	0.8				
6																
7																
8																
9																
10																
11																
12	50.0	64.0	50.0	50.0	941.0	858.0	1048.0	1191.0	0.4	12.3	0.4	0.7				
13																
14																
15																
16													240	50	1600	900
17																
18																
19		63.0	51.0	51.0		875.0	1208.0	1258.0		12.3	0.5	2.2				
20																
21																
22																
23																
24																
25																
26	48.0	64.0	50.0	50.0	305.0	766.0	1157.0	1193.0	0.6	12.3	0.9	1.6				
27																
28																
29																
30																
31																
TOT	152.0	247.0	201.0	201.0	1752.0	3137.0	4376.0	4620.0	1.8	41.6	2.2	5.3	240.0	50.0	1600.0	900.0
HIGH	54.0	64.0	51.0	51.0	941.0	875.0	1208.0	1258.0	0.8	12.3	0.9	2.2	240.0	50.0	1600.0	900.0
LOW	0.0	56.0	50.0	50.0	305.0	638.0	963.0	978.0	0.4	4.7	0.4	0.7	240.0	50.0	1600.0	900.0
AVG	38.0	61.8	50.3	50.3	584.0	784.3	1094.0	1155.0	0.6	10.4	0.6	1.3	240.0	50.0	1600.0	900.0
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 1-22-02

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 01/12/01 Ending Yr/Mo./Day 01/12/31 State Code 06 NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
1																
2																
3																
4																
5																
6																
7																✓
8																
9																
10																
11																
12																
13																
14																
15																
16																
17	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D								
18																
19																
20																
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
TOT																
HIGH																
LOW																
AVG																
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative [signature]

Date 1 22 02

[5C500108001]

Reporting Period Begining Yr/Mo./Day 02/01/01 Ending Yr/Mo./Day 02/01/31 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
1														
2	8.5	7.4	8.8	8.6	7.6	7.3	7.6	7.6	42.5	17.7	95.3	86.8	15.5	2853.5
3														
4														
5														
6														
7														
8														
9	7.9	6.9	9.1	9.1	7.7	7.3	7.8	7.7	2.6	4.9	44.8	37.5	9.0	2055.3
10														
11														
12														
13														
14														
15														
16	9.5	7.6	10.3	9.8	7.8	7.4	8.0	7.8	1.5	6.3	24.2	17.7	9.7	462.1
17														
18														
19														
20														
21														
22														
23	10.3	8.2	11.0	10.6	7.9	7.5	8.0	7.8	1.0	8.0	17.4	11.9	5.4	384.6
24														
25														
26														
27														
28														
29														
30	10.6	8.5	10.7	11.3	7.9	7.4	7.9	7.8	0.9	3.4	22.1	11.5	5.4	361.0
31														
TOT	46.8	38.6	49.9	49.4	38.9	36.9	39.3	38.7	48.5	40.3	203.8	165.4	44.9	6116.5
HIGH	10.6	8.5	11.0	11.3	7.9	7.5	8.0	7.8	42.5	17.7	95.3	86.8	15.5	2853.5
LOW	7.9	6.9	8.8	8.6	7.6	7.3	7.6	7.6	0.9	3.4	17.4	11.5	5.4	361.0
AVG	9.4	7.7	10.0	9.9	7.8	7.4	7.9	7.7	9.7	8.1	40.8	33.1	9.0	1223.3
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

Principal Executive Officer or Representative Cliff Martt

Date 2-14-02

[5C500108001] Reporting Period Begining Yr/Mo./Day 02/01/01 Ending Yr/Mo./Day 02/01/31 State Code 06 NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F R-1	R-2	R-3	R-4	Electrical Conductivity Weekly Grab umhos/cm R-1	R-2	R-3	R-4	Ammonia as N Weekly Grab mg/l R-1	R-2	R-3	R-4	Fecal Coliform Quarterly grab MPN/100ml R-1	R-2	R-3	R-4
1																
2	56	62.0	59.0	59.0	720.0	468.0	485.0	765.0	2.2	9.4	1.6	1.7				
3																
4																
5																
6																
7																
8																
9	60.1	61.7	54.9	54.7	883.0	955.0	825.0	954.0	0.5	9.8	1.3	1.1				
10																
11																
12																
13																
14																
15																
16	49.8	54.1	46.8	46.0	973.0	1053.0	1359.0	1481.0	1.3	15.3	0.6	2.1				
17																
18																
19																
20																
21																
22																
23	51.0	53.0	46.0	46.0	801.0	1017.0	1640.0	1720.0	0.1	15.1	0.56	2				
24																
25																
26																
27																
28																
29																
30	48.0	50.0	43.0	45.0	432.0	915.0	1662.0	1635.0	0.7	10.4	0.8	1.9				
31																
TOT	264.9	280.8	249.7	250.7	3809.0	4408.0	5971.0	6555.0	4.8	60.0	4.9	8.8				
HIGH	60.1	62.0	59.0	59.0	973.0	1053.0	1662.0	1720.0	2.2	15.3	1.6	2.1				
LOW	48.0	50.0	43.0	45.0	432.0	468.0	485.0	765.0	0.1	9.4	0.6	1.1				
AVG	53.0	56.2	49.9	50.1	761.8	881.6	1194.2	1311.0	1.0	12.0	1.0	1.8				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative [signature] Date 2-14-02

[5C500108001] Reporting Period Beginning Yr/Mo./Day 02/01/01 Ending Yr/Mo./Day 02/01/31 State Code 06 NPDES Permit # 0078948

	DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10																
	11																
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	26																
	27																
	28																
	29																
	30																
	31																
	TOT																
	HIGH																
	LOW																
	AVG																
MONTHLY AVG	LIMIT																
7-DAY AVG	LIMIT																
DAILY MAX	LIMIT																

Principal Executive Officer or Representative _____ Date 2-14-02

Facility I.D. [5C500108001]

Reporting Period Begining Yr/Mo./Day 02/02/01 Ending Yr/Mo./Day 02/02/28

State Code 06

NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
1														
2														
3														
4														
5														
6	9.3	8.3	11.0	11.3	7.3	7.4	8.0	7.9	0.9	2.9	18.5	15.5	5.4	393.0
7														
8														
9														
10														
11														
12														
13	8.1	7.0	9.1	8.9	7.7	7.5	8.0	7.9	1.4	4.6	25.8	15.6	6.4	375.9
14														
15														
16														
17														
18														
19														
20	8.8	8.6	9.1	9.6	7.7	7.8	7.9	7.8	1.2	1.5	26.3	21.5	6.9	406.8
21														
22														
23														
24														
25														
26														
27		5.0	8.5	8.6		7.3	7.8	7.8		6.1	28.6	25.0		373.0
28														
29														
30														
31														
TOT	26.2	28.9	37.7	38.4	22.7	30.0	31.7	31.4	3.5	15.1	99.2	77.6	18.6	1548.7
HIGH	9.3	8.6	11.0	11.3	7.7	7.8	8.0	7.9	1.4	6.1	28.6	25.0	6.9	406.8
LOW	8.1	5.0	8.5	8.6	7.3	7.3	7.8	7.8	0.9	1.5	18.5	15.5	5.4	373.0
AVG	8.7	7.2	9.4	9.6	7.6	7.5	7.9	7.9	1.2	3.8	24.8	19.4	6.2	387.2
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		>5.0		>5.0										

Principal Executive Officer or Representative _____

Date 3-20-02

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 02/02/01 Ending Yr/Mo./Day 02/02/28

State Code 06

NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6	53.6	56.1	45.3	45.3	959	891	1610	1573	0.6	6.2	0.3	1.0				
7																
8																
9																
10																
11																
12																
13	60.8	61.2	53.6	53.1	607	965	717	1423	0.6	8.7	0.6	1.0				
14																
15																
16																
17																
18																
19																
20	60.0	60.0	57.0	57.0	922	925	1425	1415	0.2	2.1	0.5	0.4				
21																
22																
23																
24																
25																
26																
27		64.2	58.8	59.7		531	1643	1587		15.7	0.6	1.2				
28																
29																
30																
31																
TOT	174.4	241.5	214.7	215.1	2488	3312	5395	5998	1.4	32.7	2.0	3.6				
HIGH	60.8	64.2	58.8	59.7	959	965	1643	1587	0.6	15.7	0.6	1.2				
LOW	53.6	56.1	45.3	45.3	607	531	717	1415	0.2	2.1	0.3	0.4				
AVG	58.1	60.4	53.7	53.8	829.3	828.0	1348.8	1499.5	0.5	8.2	0.5	0.9				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 3-20-02

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 02/02/01 Ending Yr/Mo./Day 02/02/28

State Code 06

NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
1																
2																
3																
4																
5																
6																
7																
8																
9																
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21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
TOT																
HIGH																
LOW																
AVG																
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____

Date 3-20-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/03/01 Ending Yr/Mo./Day 02/03/31 State Code 06 NPDES Permit # 0078948

	DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
	1														
	2														
	3														
	4														
	5														
	6	5.9	4.6	8.8	7.7	7.4	7.3	7.9	7.7	4.4	4.0	30.0	32.0	0	421.1
	7														
	8														
	9														
	10														
	11														
	12														
	13	9.4	8.7	9.0	9.5	7.6	7.3	7.7	7.8	11.1	8.8	38.7	26.3	10.9	444.4
	14														
	15														
	16														
	17														
	18														
	19														
	20	10.1	5.8	9.8	9.7	7.6	7.3	7.7	7.8	11.1	8.8	38.7	26.3	0	444.0
	21														
	22														
	23														
	24														
	25														
	26														
	27	10.6	10.2	9.5	9.2	7.6	7.4	7.6	7.7	7.2	7.8	15.6	15.2	27.8	392.0
	28														
	29														
	30														
	31														
	TOT	36.0	29.3	37.1	36.1	30.2	29.3	30.9	31.0	33.8	29.4	123.0	99.8	38.7	1701.5
	HIGH	10.6	10.2	9.8	9.7	7.6	7.4	7.9	7.8	11.1	8.8	38.7	32.0	27.8	444.4
	LOW	5.9	4.6	8.8	7.7	7.4	7.3	7.6	7.7	4.4	4.0	15.6	15.2	0	392.0
	AVG	9.0	7.3	9.3	9.0	7.6	7.3	7.7	7.8	8.5	7.4	30.8	25.0	9.7	425.4
MONTHLY AVG	LIMIT														
7-DAY AVG	LIMIT														
DAILY MIN	LIMIT		<5.0		<5.0										

Principal Executive Officer or Representative _____ Date 4-19-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/03/01 Ending Yr/Mo./Day 02/03/31 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6	62.1	66.6	57.4	57.2	1128.0	950.0	1716.0	1860.0	1.3	14.0	0.3	0.9				
7																
8																
9																
10																
11																
12																
13	55.4	56.7	55.4	55.2	292	501	1670	1530	0.5	6.2	0.6	1.0				
14																
15																
16																
17																
18																
19																
20	57	63	54.9	57.9	240	750	1588	1444	0.3	10.1	0.3	0.4				
21																
22																
23																
24																
25													110	50	500	900
26																
27	59.0	58.6	60.6	61.2	115	106	1404	890	0.3	1.3	0.2	0.9				
28																
29																
30																
31																
TOT	233.5	244.9	228.3	231.5	1775	2307	6378	5724	2.4	31.6	1.4	3.2	110	50	500	900
HIGH	62.1	66.6	60.6	61.2	1128	950	1716	1860	1.3	14.0	0.6	1.0	110	50	500	900
LOW	55.4	56.7	54.9	55.2	115	106	1404	890	0.3	1.3	0.2	0.4	110	50	500	900
AVG	58.4	61.2	57.1	57.9	444	577	1595	1431	0.6	7.9	0.4	0.8	110	50	500	900
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 4-19-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/03/01 Ending Yr/Mo./Day 02/03/31 State Code 06 NPDES Permit # 0078948

	DATE	Chlorpyrifos Quarterly grab ug/L R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/L R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20																
	21																
	22																
	23																
	24																
	25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
	26																
	27																
	28																
	29																
	30																
	31																
	TOT	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
	HIGH	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
	LOW	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
	AVG	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
MONTHLY AVG	LIMIT																
7-DAY AVG	LIMIT																
DAILY MAX	LIMIT																

See enclosed reports.

Principal Executive Officer or Representative _____ Date 4-19-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/04/01 Ending Yr/Mo./Day 02/04/30 State Code 06 NPDES Permit # 0078948

	DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
	1														
	2														
	3	10.4	10.4	9	8.9	7.6	7.3	7.5	7.5	10.4	9.7	23.4	22.5	35.1	302.6
	4														
	5														
	6														
	7														
	8														
	9														
	10	10.2	5.6	8.6	10.5	7.1	6.7	7.5	7.6	4.8	5.9	30.4	18.1	1.4	302.0
	11														
	12														
	13														
	14														
	15														
	16														
	17	9.8	10	9	8.7	7.6	7.6	7.5	7.5	4.0	4.2	54.7	37.0	16.6	337.0
	18														
	19														
	20														
	21														
	22														
	23														
	24	9.6	9.6	8.2	7.8	7.4	7.2	7.5	7.3	2.9	3.8	28.6	20.9	22.6	400.3
	25														
	26														
	27														
	28														
	29														
	30														
	31														
	TOT	40.0	35.6	34.8	35.9	29.7	28.8	30.0	29.9	21.9	23.6	137.1	98.5	75.6	1341.9
	HIGH	10.4	10.4	9.0	10.5	7.6	7.6	7.5	7.6	10.4	9.7	54.7	37.0	35.1	400.3
	LOW	9.6	5.6	8.2	7.8	7.1	6.7	7.5	7.3	2.9	3.8	23.4	18.1	1.4	302.0
	AVG	10.0	8.9	8.7	9.0	7.4	7.2	7.5	7.5	5.5	5.9	34.3	24.6	18.9	335.5
MONTHLY AVG	LIMIT														
7-DAY AVG	LIMIT														
DAILY MIN	LIMIT		<5.0		<5.0										

Principal Executive Officer or Representative _____ Date 5-14-02

Facility I.D. | 5C500108001 | Reporting Period Beginning Yr/Mo./Day 02/04/01 Ending Yr/Mo./Day 02/04/30 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3	63.7	62.4	65.3	64.9	197	228	1680	1314	2.2	2.9	0.8	1.2				
4																
5																
6																
7																
8																
9																
10	60.4	65.5	63.7	63.7	273	751	1440	1452	0.2	8.8	0.2	0.1				
11																
12																
13																
14																
15																
16																
17	59.5	58.5	60.3	60.6	144	121	1245	1063	0.2	2.1	0.2	0.6				
18																
19																
20																
21																
22																
23																
24	64.8	64.0	65.7	66.0	279	341	1050	970	0.2	1.1	0.2	0.7				
25																
26																
27																
28																
29																
30																
31																
TOT	248.4	250.4	255.0	255.2	893	1441	5415	4799	2.7	14.9	1.4	2.6				
HIGH	64.8	65.5	65.7	66.0	279	751	1680	1452	2.2	8.8	0.8	1.2				
LOW	59.5	58.5	60.3	60.6	144	121	1050	970	0.2	1.1	0.2	0.1				
AVG	62.1	62.6	63.8	63.8	223	360	1354	1200	0.7	3.7	0.3	0.7				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 5-14-02

Facility I.D. 5C500108001

Reporting Period Beginning Yr/Mo./Day 02/04/01 Ending Yr/Mo./Day 02/04/30

State Code 06

NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
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29																
30																
31																
TOT																
HIGH																
LOW																
AVG																
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative

Date 5-14-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/05/01 Ending Yr/Mo./Day 02/05/31 State Code 06 NPDES Permit # 0076948

	Dissolved Oxygen Weekly Grab mg/l				pH Weely Grab units				NTU Weekly Grab units				R-1 Flow Weekly	R-3 Flow Weekly	
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	MGD	MGD	
1	8.8	8.2	9.1	8.9	7.8	7.0	7.6	7.6	3.6	4.8	35.0	30.0	10.9	395.3	
2															
3															
4															
5															
6															
7															
8	9.2	8.5	9.5	9.2	7.8	7.4	7.8	7.6	3.7	5.1	34.8	30.2	11.7	795.1	
9															
10															
11															
12															
13															
14															
15	7.1	7.2	7.0	6.3	7.7	7.6	7.6	7.5	3.8	4.6	46.0	42.6	21.5	477.0	
16															
17															
18															
19															
20															
21															
22	9.0	8.7	8.0	7.9	7.7	7.5	7.6	7.6	5.0	4.9	46.1	32.5	12.2	336.0	
23															
24															
25															
26															
27															
28															
29	8.9	9.5	7.9	7.8	7.5	7.4	7.7	7.6	4.8	4.7	45.0	55.4	27.1	304.6	
30															
31															
TOT	43.0	42.1	41.5	40.1	38.5	36.9	38.3	37.9	20.9	24.1	206.9	190.7	83.5	2308.0	
HIGH	9.2	9.5	9.5	9.2	7.8	7.6	7.8	7.6	5.0	5.1	46.1	55.4	27.1	795.1	
LOW	7.1	7.2	7.0	6.3	7.5	7.0	7.6	7.5	3.6	4.6	34.8	30.0	10.9	304.6	
AVG	8.6	8.4	8.3	8.0	7.7	7.4	7.7	7.6	4.2	4.8	41.4	38.1	16.7	461.6	
MONTHLY AVG LIMIT															
7-DAY AVG LIMIT															
DAILY MIN LIMIT		<5.0		<5.0											

Principal Executive Officer or Representative _____ Date 6-19-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/05/01 Ending Yr/Mo./Day 02/05/31 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1	60.6	62.4	61.5	61.9	84	227	833	1029	0.2	3.4	0.2	0.8				
2																
3																
4																
5																
6																
7																
8	66.0	66.4	62.4	63.3	129	244	420	366	0.1	1.8	0.2	0.2				
9																
10																
11																
12																
13																
14																
15	67.0	67.0	68.0	68.0	360	435	810	860	0.7	2.1	0.6	1.5				
16																
17																
18																
19																
20																
21																
22	63.3	63.7	64.4	63.9	264	390	1060	920	0.7	2.5	0.6	1.3				
23																
24																
25																
26																
27																
28																
29	69.9	70.3	74.1	74.7	351	383	1241	879	0.6	1.0	1.0	0.8				
30																
31																
TOT	326.8	329.8	330.4	331.8	1188	1679	4364	4054	2.3	10.8	2.6	4.6				
HIGH	69.9	70.3	74.1	74.7	360	435	1241	920	0.7	2.5	1.0	1.5				
LOW	60.6	62.4	61.5	61.9	84	227	420	366	0.1	1.0	0.2	0.2				
AVG	65.4	66.0	66.1	66.4	238	336	873	811	0.5	2.2	0.5	0.9				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 6-19-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/05/01 Ending Yr/Mo./Day 02/05/31 State Code 06 NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
1																
2																
3																
4																
5																
6																
7																
8																
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10																
11																
12																
13																
14																
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16																
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18																
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20																
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
TOT																
HIGH																
LOW																
AVG																
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 6-14-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/06/01 Ending Yr/Mo./Day 02/06/30 State Code 06 NPDES Permit # 0078948

	Dissolved Oxygen Weekly Grab mg/l				pH Weekly Grab units				NTU Weekly Grab units				R-1 Flow Weekly MGD	R-3 Flow Weekly MGD	
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4			
1															
2															
3															
4															
5	8.7	8.0	7.8	8.0	7.8	7.4	7.9	7.8	6.2	6.1	31.4	26.6	14.9	299.7	
6															
7															
8															
9															
10															
11															
12	9.3	4.0	9.2	8.6	7.6	7.0	7.8	7.7	6.2	5.4	45.0	30.0	1.5	214.1	
13															
14															
15															
16															
17															
18															
19	7.5	5.9	8.1	8.3	7.2	6.9	7.8	7.8	4.2	5.9	48.9	31.0	4.1	209.3	
20															
21															
22															
23															
24															
25															
26	8.4	4.3	7.6	7.7	7.0	6.7	7.4	7.6	5.9	4.2	57.0	36.0	12.4	239.9	
27															
28															
29															
30															
31															
TOT	33.9	22.2	32.7	32.6	29.6	28	30.9	30.9	22.5	21.6	182.3	123.6	32.93	963.0	
HIGH	9.3	8.0	9.2	8.6	7.8	7.4	7.9	7.8	6.2	6.1	57.0	36.0	14.93	299.7	
LOW	7.5	4.0	7.6	7.7	7.0	6.7	7.4	7.6	4.2	4.2	31.4	26.6	1.47	209.3	
AVG	8.5	5.6	8.2	8.2	7.4	7.0	7.7	7.7	5.6	5.4	45.6	30.9	8.23	240.8	
MONTHLY AVG LIMIT															
7-DAY AVG LIMIT															
DAILY MIN LIMIT		<5.0		<5.0											

Principal Executive Officer or Representative _____ Date 7-15-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/06/01 Ending Yr/Mo./Day 02/06/30 State Code 06 NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5	71.6	71.8	76.1	76.1	288	180	1088	988	0.8	3.4	0.7	1.1				
6																
7																
8																
9																
10													80	240	130	130
11																
12	70.0	75.0	73.0	72.0	298	898	1404	1027	0.05	5.6	0.05	0.9				
13																
14																
15																
16																
17																
18																
19	69.4	73.4	74.5	73.9	306	721	1409	1106	0.1	0.27	0.2	0.7				
20																
21																
22																
23																
24																
25																
26	71.8	75.7	74.5	74.5	155	770	1247	1003	0.06	1.0	0.06	0.06				
27																
28																
29																
30																
31																
TOT	282.8	295.9	298.1	296.5	1047	2569	5148	4124	1.01	10.27	1.01	2.76	80	240	130	13
HIGH	71.8	75.7	76.1	76.1	306	898	1409	1106	0.80	5.60	0.70	1.10	80	240	130	13
LOW	69.4	71.8	73.0	72.0	155	180	1088	988	0.05	0.27	0.05	0.06	80	240	130	13
AVG	70.7	74.0	74.5	74.1	262	642	1287	1031	0.25	2.57	0.25	0.69	80	240	130	13
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 7/5-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/06/01 Ending Yr/Mo./Day 02/06/30 State Code 06 NPDES Permit # 0078948

	DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
	1									SEE	SEE						
	2									ATTACHED	ATTACHED						
	3									SHEETS	SHEETS						
	4																
	5																
	6																
	7																
	8																
	9																
	10																
	11																
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	25																
	26																
	27																
	28																
	29																
	30																
	31																
	TOT																
	HIGH																
	LOW																
	AVG																
MONTHLY AVG	LIMIT																
7-DAY AVG	LIMIT																
DAILY MAX	LIMIT																

Principal Executive Officer or Representative _____ Date 7/5/02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/07/01 Ending Yr/Mo./Day 02/07/31 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD	
1															
2															
3	7.9	5.0	7.5	7.6	7.4	7	7.8	7.8	3.5	2.9	64.0	57.0		187.8	
4															
5															
6															
7															
8															
9															
10	7.9	3.9	7.4	6.6	6.8	6.7	7.7	7.6	4.6	6.2	67.5	45.8	1.47	188.8	
11															
12															
13															
14															
15															
16															
17	7.9	8.9	7.9	7.6	6.9	7.2	7.7	7.6	2.5	3.3	52.4	41.3	22.08	144.0	
18															
19															
20															
21															
22															
23															
24	8	6.9	7.5	7.1	7.1	7.1	7.6	7.4	3.9	5.5	39.0	38.9	14.00	175.2	
25															
26															
27															
28															
29															
30															
31	10.1	7.6	8.2	8.3	7.4	7	7.6	7.4	3.9	2.6	52.0	35.3	1.93	223.0	
TOT	41.8	32.3	38.5	37.2	35.6	35.0	38.4	37.8	18.4	20.5	274.9	218.3	39.48	918.8	
HIGH	10.1	8.9	8.2	8.3	7.4	7.2	7.8	7.8	4.6	6.2	67.5	57.0	22.08	223	
LOW	7.9	3.9	7.4	6.6	6.8	6.7	7.6	7.4	2.5	2.6	39.0	35.3	1.47	144.0	
AVG	8.4	5.5	7.7	7.4	7.1	7.0	7.7	7.6	3.7	4.1	55.0	43.7	9.87	183.8	
MONTHLY AVG LIMIT															
7-DAY AVG LIMIT															
DAILY MIN LIMIT		<5.0		<5.0											

Representative _____ Date 8-20-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/07/01 Ending Yr/Mo./Day 02/07/31 State Code 06 NPDES Permit # 0078948

	DATE	Temperature Weekly Grab Degree F R-1	R-2	R-3	R-4	Electrical Conductivity Weekly Grab umhos/cm R-1	R-2	R-3	R-4	Ammonia as N Weekly Grab mg/l R-1	R-2	R-3	R-4	Fecal Coliform Quarterly grab MPN/100ml R-1	R-2	R-3	R-4
	1																
	2																
	3	71.8	77.4	76.1	75.2	260	836	1267	1204	0.2	0.7	0.1	0.4				
	4																
	5																
	6																
	7																
	8																
	9																
	10	73.0	82.8	79.5	78.8	218	835	1347	1097	0.2	1.5	0.1	0.1				
	11																
	12																
	13																
	14																
	15																
	16																
	17	68.0	68.0	72.0	72.0	545	575	1458	1153	0.4	0.1	0.1	0.2				
	18																
	19																
	20																
	21																
	22																
	23																
	24	69.0	72.0	73.0	73.0	333	565	1268	1171	0.3	0.6	0.1	0.1				
	25																
	26																
	27																
	28																
	29																
	30																
	31	69.0	74.0	74.0	73.0	256	816	1125	1017	0.2	0.1	<0.1	<0.1				
	TOT	350.8	374.2	374.6	372.0	1612	3627	6465	5642	1.3	3.0	0.4	0.8				
	HIGH	73.0	82.8	79.5	78.8	545	836	1458	1204	0.4	1.5	0.1	0.4				
	LOW	68.0	68.0	72.0	72.0	218	565	1125	1017	0.2	0.1	<0.1	<0.1				
	AVG	70.2	74.8	74.9	74.4	322	725	1293	1128	0.3	0.6	0.1	0.2				
MONTHLY AVG	LIMIT																
7-DAY AVG	LIMIT																
DAILY MAX	LIMIT																

or Representative _____ Date 8-20-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/07/01 Ending Yr/Mo./Day 02/07/31 State Code 06 NPDES Permit # 0078948

	DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
	1	SEE				SEE						SEE					
	2	ATTACHED				ATTACHED						ATTACHED					
	3	SHEETS				SHEETS						SHEETS					
	4																
	5																
	6																
	7																
	8																
	9																
	10																
	11																
	12																
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	27																
	28																
	29																
	30																
	31																
	TOT																
	HIGH																
	LOW																
	AVG																
MONTHLY AVG	LIMIT																
7-DAY AVG	LIMIT																
DAILY MAX	LIMIT																

NOTE: THESE RESULTS ARE FROM SAMPLES COLLECTED ON 6-10-02. THEY SATISFY THE QUARTERLY REQUIREMENTS FOR DIAZINON AND CHLOROPYRIFOS. THE OTHER SAMPLES COLLECTED ON 6-10-02 SATISFY THE SEMI-ANNUAL REQUIREMENTS FOR OUTFALL SAMPLING.

ˆutive Officer or Representative _____ Date 8-20-02

[5C500108001] Reporting Period Beginning Yr/Mo./Day 02/08/01 Ending Yr/Mo./Day 02/08/31 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weeky Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4		R-1 Flow Weekly MGD	R-3 Flow Weekly MGD	
1																
2																
3																
4																
5																
6																
7	8.7	7.4	8.7	8.5	7.2	6.9	7.8	7.4	3.4	2.7	37.5	22		2.17	195.5	
8																
9																
10																
11																
12																
13																
14	8.6	7.3	7.7	7.1	7.4	7	7.5	7.8	3.5	4.8	55.7	38.4		1.47	168.8	
15																
16																
17																
18																
19																
20																
21	8.9	9.1	8.1	8.5	7.3	7.2	7.5	7.5	2.7	3.2	49.8	23		1.47	196.6	
22																
23																
24																
25																
26																
27																
28	8.4	9.1	7.9	7.6	7.4	7.1	7.6	7.5	3.5	3.7	34.3	17.6		21.5	202.7	
29																
30																
31																
TOT	34.6	32.9	32.4	31.7	29.3	28.2	30.4	30.2	13.1	14.4	177.3	101.0		26.7	763.6	
HIGH	8.9	9.1	8.7	8.5	7.4	7.2	7.8	7.8	3.5	4.8	55.7	38.4		21.5	202.7	
LOW	8.4	7.3	7.7	7.1	7.2	6.9	7.5	7.4	2.7	2.7	34.3	17.6		1.5	168.8	
AVG	8.7	8.2	8.1	7.9	7.3	7.1	7.6	7.6	3.3	3.6	44.3	25.3		6.7	190.9	
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MIN LIMIT		<5.0		<5.0												

Principal Executive Officer or Representative _____ Date 9-19-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/08/01 Ending Yr/Mo./Day 02/08/31 State Code 06 NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6																
7	69.8	73.4	69.4	69.8	328	862	1385	1019	0.5	0.3	0.5	0.2				
8																
9																
10																
11																
12																
13																
14	69.4	77.0	73.8	74.1	269	930	1422	1136	0.2	0.3	0.1	0.1				
15																
16																
17																
18																
19																
20																
21	67.3	67.1	68.7	67.8	340	402	1265	978	0.2	0.3	0.2	0.1				
22																
23																
24																
25																
26																
27																
28	70.3	70.7	73.9	74.3	245	326	1268	1064	0.3	0.4	0.1	0.1				
29																
30																
31																
TOT	276.8	288.2	285.8	286.0	1182	2520	5340	4197	1.2	1.3	0.9	0.5				
HIGH	70.3	77.0	73.9	74.3	340	930	1422	1136	0.5	0.4	0.5	0.2				
LOW	67.3	67.1	68.7	67.8	245	326	1265	978	0.2	0.3	0.1	0.1				
AVG	69.2	72.1	71.5	71.5	296	630	1335	1049	0.3	0.3	0.2	0.1				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 9-19-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/08/01 Ending Yr/Mo./Day 02/08/31 State Code 06 NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
1																
2																
3																
4																
5																
6																
7																
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29																
30																
31																
TOT																
HIGH																
LOW																
AVG																
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 9-19-02

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
SELF MONITORING REPORT
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
3443 ROUTIER ROAD STE A
SACRAMENTO, CA 95827-3098

TURLOC OF
901 SOU. LNUT Rd.
TURLOCK, CA
95380

Reporting Period Beginning Yr/Mo./Day 02/08/01 Ending Yr/Mo./Day 02/08/31 Permit # R5-2002-0061

EFFLUENT DATA FOR THE BAR-VEE MONITORING REPORT

DATE	Flow MG/APPL	Area Irrigated Acres	pH units MAX GRAB CONTINUOUS	pH units MIN GRAB CONTINUOUS	BOD mg/L COMP WEEKLY	TOTAL COLIFORM ORGANISMS MPN/100ml grab-daily	TDS mg/L GRAB MONTHLY	SODIUM mg/L GRAB MONTHLY	CHLORIDE mg/L GRAB MONTHLY	TKN mg/L GRAB MONTHLY	NH3-N mg/L GRAB MONTHLY	NO3-N mg/L COMP MONTHLY	NO2-N mg/L COMP MONTHLY	Supplemental Fertilizer lbs/acre	TOTAL NITROGEN LOADING RATE LBS/AC	BOD LOADING RATE LBS/AC	TDS LOADING RATE LBS/AC	STANDARD MINERALS COMP ANNUALLY
1			6.8	6.6	2	<23					0.1							
2	X		6.7	6.7	3	<23					0.2							
3			6.9	6.7	2	<23												
4			6.7	6.6	2	<23	592											
5	X		6.7	6.6	2	<23	520				0.1							
6	X		6.9	6.7	3	<23					0.3							
7	X		6.9	6.7	4	<23				3	0.2	17	<0.4					
8	X		6.9	6.1	4	<23					0.1							
9	X		6.8	6.5	6	<23					0.2							
10			6.8	6.5	4	<23												
11			6.8	6.5	4	<23	602											
12	X		6.7	6.2	3	<23	586				0.2							
13	X		6.9	6.4	4	<23					0.1							
14	X		7.0	6.8	3	<23		123	115		0.1							
15	X		6.9	6.8	3	<23					0.3							
16	X		6.8	6.6	4	<23					0.1							
17			6.9	6.7	3	<23												
18			7.0	6.9	3	<23												
19	X		7.0	6.7	4	<23					0.2							
20	X		7.0	7.0	4	50					0.2							
21	X		7.0	6.8	4	<23	568				0.1							
22			7.0	6.8	4	<23	562				0.2							
23	X		7.1	6.7	5	<23					0.3							
24			7.0	6.9	5	<23												
25			7.3	6.9	3	<23	612											
26	X		7.0	7.0	3	<23	582				0.1							
27	X		7.2	7.0	5	<23					0.3							
28	X		7.2	7.2	6	<23					1.2							
29	X		7.2	6.8	5	<23					0.2							
30	X		7.1	6.8	3	<23					0.1							
31			7.1	6.9	3													
TOT	59.60	300												63	95.06	6.0	957.7	see
HIGH						50	612											attached
LOW						<23	520											sheets
AVG	2.98		6.9	6.7	3.6	<23	578	123	115	3.0	0.2	17	0.0					

The values for BOD are run on a 24 hour composite sample.
The total number of days irrigated was 16 days.
The TDS analysis is run on a grab twice per week. The values for loading rate are based on the average values calculated from the weekly results.
The TKN, NO3 and NO2 analysis are run once per month. The loading rates are based on these values.
Total Nitrogen loading will equal the MG/Application of effluent times the sum of the Nitrogen in TKN ,NO3 and NO2 times 8.34 divided by the acreage (300) plus any additional Nitrogen added per acre. plus the addition of any supplemental fertilizer (lbs/ac).

Principal Executive Officer or Representative: [signature] Date: 9-19-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/09/01 Ending Yr/Mo./Day 02/09/30 State Code 06 NPDES Permit # 0078948

DAY	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weely Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4		R-1 Flow Weekly MGD	R-3 Flow Weekly MGD	
1																
2																
3																
4	7.4	8.7	7.0	6.6	7.5	7.2	7.7	7.4	2.8	3.7	31.2	25.1		27.1	181.5	
5																
6																
7																
8																
9																
10																
11	9.4	9.6	8.0	7.2	7.5	7.5	7.6	7.5	4.6	5.1	29.6	25		39.6	173	
12																
13																
14																
15																
16																
17																
18	7.6	6.4	7.5	7.8	7.5	7.0	7.5	7.5	1.2	5.1	35.9	29.8		3.0	148.1	
19																
20																
21																
22																
23																
24																
25	7.6	6.7	6.7	7.3	7	6.7	7.3	7.4	2.2	4.7	29.9	23.1		4.2	156	
26																
27																
28																
29																
30																
TOT	32.0	31.4	29.2	28.9	29.5	28.4	30.1	29.8	10.8	18.6	126.6	103.0		73.9	658.6	
HIGH	9.4	9.6	8.0	7.8	7.5	7.5	7.7	7.5	4.6	5.1	35.9	29.8		39.6	181.5	
LOW	7.4	6.4	6.7	6.6	7.0	6.7	7.3	7.4	1.2	3.7	29.6	23.1		3.0	148.1	
AVG	8.0	7.9	7.3	7.2	7.4	7.1	7.5	7.5	2.7	4.7	31.7	25.8		18.5	164.7	
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MIN LIMIT		<5.0		<5.0												

Principal Executive Officer or Representative _____ Date 10-18-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/09/01 Ending Yr/Mo./Day 02/09/30 State Code 06 NPDES Permit # 0078948

DAY	Temperature Weekly Grab Degree F R-1	R-2	R-3	R-4	Electrical Conductivity Weekly Grab umhos/cm R-1	R-2	R-3	R-4	Ammonia as N Weekly Grab mg/l R-1	R-2	R-3	R-4	Fecal Coliform Quarterly grab MPN/100ml R-1	R-2	R-3	R-4
1																
2																
3																
4	70.2	70.2	72.9	71.1	184	226	1428	963	0.2	0.2	0.3	0.3				
5																
6																
7																
8																
9																
10																
11	69.4	68.9	71.6	72.5	221	274	1251	1068	0.6	0.5	0.1	1.1				
12																
13																
14																
15																
16																
17																
18	67.0	74.5	70.7	69.9	447	812	1286	1157	0.2	0.1	0.1	0.1				
19																
20																
21																
22																
23																
24																
25	68.4	72.7	68.7	69.9	300	730	1250	1081	0.2	0.1	0.2	0.1				
26																
27																
28																
29																
30																
TOT	275.0	286.3	283.9	283.4	1152	2042	5215	4269	1.2	0.9	0.7	1.6				
HIGH	70.2	74.5	72.9	72.5	447	812	1428	1157	0.6	0.5	0.3	1.1				
LOW	67.0	68.9	68.7	69.9	184	226	1250	963	0.2	0.1	0.1	0.1				
AVG	68.8	71.6	71.0	70.9	288	511	1304	1067	0.3	0.2	0.2	0.4				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 10-18-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/09/01 Ending Yr/Mo./Day 02/09/30 State Code 06 NPDES Permit # 0078948

DAY	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
TOT																
HIGH																
LOW																
AVG																
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Enclosed are the results for a Standard Mineral Analysis on the Plant Effluent. This analysis is required under the discharge permit. This is an annual requirement.

Principal Executive Officer or Representative _____ Date 10-18-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/10/01 Ending Yr/Mo./Day 02/10/31 State Code 08 NPDES Permit # 0078948

DAY	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weely Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
1														
2	8.8	8.0	8.5	9.0	7.2	6.9	7.5	7.3	2.7	4.0	17.5	18.2	4.15	163.80
3														
4														
5														
6														
7														
8														
9	8.4	7.4	7.7	7.7	7.3	7	7.4	7.2	3.1	6.4	28.4	24.6	1.47	183.26
10														
11														
12														
13														
14														
15														
16	9.0	8.9	7.6	7.8	7.1	6.7	7.2	7.3	2.3	4.6	25.4	17.6	16.39	217.40
17														
18														
19														
20														
21														
22														
23	8.0	9.3	8.6	8.4	7.5	7.2	7.3	7.3	6.2	6.4	27	15.3	33.16	579.00
24														
25														
26														
27														
28														
29														
30	8.5	8.5	9.0	9.1	7.5	7.4	7.7	7.6	0.9	2.3	25.2	13.5	7.62	442.00
31														
TOT	42.7	42.1	41.4	42.0	36.6	35.2	37.1	36.7	15.2	23.6	123.5	89.2	62.79	1585.46
HIGH	9.0	9.3	9.0	9.1	7.5	7.4	7.7	7.6	6.2	6.4	28.4	24.6	33.16	579.00
LOW	8.0	7.4	7.6	7.7	7.1	6.7	7.2	7.2	0.9	2.3	17.5	13.5	1.47	163.80
AVG	8.5	8.4	8.3	8.4	7.3	7.0	7.4	7.3	3.0	4.7	24.7	17.8	12.56	317.09
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

Principal Executive Officer or Representative _____ Date 11-18-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/10/01 Ending Yr/Mo./Day 02/10/31 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
Day	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2	60.3	64.4	59.7	60.4	364	752	1311	1140	<1.0	<1.0	<1.0	<1.0				
3																
4																
5																
6																
7																
8																
9	68.5	73.6	68	70.7	240	754	1206	960	<1.0	<1.0	<1.0	<1.0				
10																
11																
12																
13																
14																
15																
16	61.7	64.9	64.4	63.1	200	453	1295	1207	<1.0	<1.0	<1.0	<1.0				
17																
18																
19																
20																
21													90	50	500	500
22																
23	62.6	59.7	56.5	56.5	182	272	502	570	<1.0	<1.0	<1.0	<1.0				
24																
25																
26																
27																
28																
29																
30	60.1	63.1	58.3	59	919	930	830	909	<1.0	<1.0	<1.0	<1.0				
31																
TOT	313.2	325.7	306.9	309.7	1905	3161	5144	4786					90	50	500	500
HIGH	68.5	73.6	68.0	70.7	919	930	1311	1207	<1.0	<1.0	<1.0	<1.0	90	50	500	500
LOW	60.1	59.7	56.5	56.5	182	272	502	570	<1.0	<1.0	<1.0	<1.0	90	50	500	500
AVG	62.6	65.1	61.4	61.9	381	632	1029	957	<1.0	<1.0	<1.0	<1.0	90	50	500	500
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative [signature] Date 11-18-02

Facility I.D. [5C500108001] Reporting Period Begining Yr/Mo./Day 02/10/01 Ending Yr/Mo./Day 02/10/31 State Code 06 NPDES Permit # 0078948

	Day	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab				
	1															
	2															
	3															
	4															
	5															
	6															
	7															
	8															
	9															
	10															
	11															
	12															
	13															
	14															
	15															
	16															
	17															
	18															
	19															
	20															
	21															
	22															
	23	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02		**********					
	24															
	25															
	26															
	27															
	28															
	29															
	30															
	31															
	TOT															
	HIGH	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02							
	LOW	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02							
	AVG	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02							
MONTHLY AVG	LIMIT															
7-DAY AVG	LIMIT															
DAILY MAX	LIMIT															

Attached sheets are results for the third quarter Plant Effluent Priority Pollutants.

Principal Executive Officer or Representative _____ Date 11-18-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/11/01 Ending Yr/Mo./Day 02/11/30 State Code 06 NPDES Permit # 0078948

	Dissolved Oxygen Weekly Grab mg/l				pH Weekly Grab units				NTU Weekly Grab units				R-1 Flow Weekly MGD	R-3 Flow Weekly MGD	
Day	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4			
1															
2															
3															
4															
5															
6	9.9	9.8	8.8	8.4	8.1	7.5	7.4	7.5	5.2	4.6	29	21	19.4	382.4	
7															
8															
9															
10															
11															
12															
13	6.9	7.7	8.2	7.8	7.4	7.4	7.5	7.4	5	4.3	36.4	25.6	4.5	520	
14															
15															
16															
17															
18															
19															
20	7.5	7.3	9.1	8.4	7.4	7.4	7.8	7.6	1.1	4.4	24.5	19.4	9.8	347	
21															
22															
23															
24															
25															
26															
27	9.1	8.0	9.7	9.5	8.0	7.2	7.6	7.7	2.3	6.3	19.5	12.9	0.0	263	
28															
29															
30															
31															
TOT	33.4	32.8	35.8	34.1	30.9	29.5	30.3	30.2	13.6	19.6	109.4	78.9	33.7	1512	
HIGH	9.9	9.8	9.7	9.5	8.1	7.5	7.8	7.7	5.2	6.3	36.4	25.6	19.4	520	
LOW	6.9	7.3	8.2	7.8	7.4	7.2	7.4	7.4	1.1	4.3	19.5	12.9	0.0	263	
AVG	8.4	8.2	9.0	8.5	7.7	7.4	7.6	7.6	3.4	4.9	27.4	19.7	8.4	378	
MONTHLY AVG LIMIT															
7-DAY AVG LIMIT															
DAILY MIN LIMIT		<5.0		<5.0											

At R1 on November 27th there was no measurable flow. Irrigation season is over the water in the lateral is surface runoff.

Principal Executive Officer or Representative _____ Date 12/16/02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/11/01 Ending Yr/Mo./Day 02/11/30 State Code 06 NPDES Permit # 0078948

DAY	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6	55	55	55	56	94	196	1037	998	0.4	0.8	0.1	0.6				
7																
8																
9																
10																
11																
12																
13	59	61	59	60	225	540	957	986	0.8	1.2	0.4	0.6				
14																
15																
16																
17																
18																
19																
20	57	61	53	53	840	942	1088	1116	0.5	0.6	0.5	0.6				
21																
22																
23																
24																
25																
26																
27	48	59	48	49	397	780	1236	1243	0.5	0.4	0.2	0.1				
28																
29																
30																
31																
TOT	219	236	215	218	1556	2458	4318	4343	2.2	3.0	1.2	1.9				
HIGH	59	61	59	60	840	942	1236	1243	0.8	1.2	0.5	0.6				
LOW	48	55	48	49	94	196	957	986	0.4	0.4	0.1	0.1				
AVG	55	59	54	54	389	615	1080	1086	0.6	0.8	0.3	0.5				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

Principal Executive Officer or Representative _____ Date 12-16-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/11/01 Ending Yr/Mo./Day 02/11/30 State Code 06 NPDES Permit # 0078948

DAY	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab				
1											******				
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21	<.01	<.01	<.01	<.01	<.05	<.05	<.05	<.05							
22															
23															
24															
25															
26															
27															
28															
29															
30															
31															
TOT															
HIGH	<.01	<.01	<.01	<.01	<.05	<.05	<.05	<.05							
LOW	<.01	<.01	<.01	<.01	<.05	<.05	<.05	<.05							
AVG	<.01	<.01	<.01	<.01	<.05	<.05	<.05	<.05							
MONTHLY AVG LIMIT															
7-DAY AVG LIMIT															
DAILY MAX LIMIT															

****** ATTACHED SHEETS ARE THE RESULTS FOR THE FOURTH QUARTER PRIORITY POLLUTANTS FOR THE OUTFALL SAMPLE SITES R1, R2, R3 AND R4.

Principal Executive Officer or Representative: [signature] Date 12-16-02

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/12/01 Ending Yr/Mo./Day 02/12/31 State Code 06 NPDES Permit # 0078948

	Dissolved Oxygen Weekly Grab mg/l				pH Weely Grab units				NTU Weekly Grab units				R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
DAY	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4		
1														
2														
3														
4		5.7	9.7	9.5		6.5	7.3	7.3		7.2	14.7	12.2		253.6
5														
6														
7														
8														
9														
10														
11		6.0	9.7	9.4		6.7	7.5	7.4		5.8	15.9	12.7		278.9
12														
13														
14														
15														
16														
17														
18		5.5	8.9	8.7		6.7	7.2	7.3		7.1	61.7	56.4		523.8
19														
20														
21														
22														
23		7.0	8.3	8.4		6.9	7.4	7.5		5.4	52.0	50.0		826.4
24														
25														
26														
27														
28														
29														
30		7.4	9.2	9.1		6.9	7.6	7.5		4.5	25.0	26.0		595.4
31														
TOT		31.6	45.8	45.1		33.7	37.0	37.0		30.0	169.3	157.3		2478.1
HIGH		7.4	9.7	9.5		6.9	7.6	7.5		7.2	61.7	56.4		826.4
LOW		5.5	8.3	8.4		6.5	7.2	7.3		4.5	14.7	12.2		253.6
AVG		6.3	9.2	9.0		6.7	7.4	7.4		6.0	33.9	31.5		495.6
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

There has been no flow at the R1 sample site.

Principal Executive Officer or Representative _____ Date 1-15-03

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/12/01 Ending Yr/Mo./Day 02/12/31 State Code 06 NPDES Permit # 0078948

	DAY	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
		R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
	1																
	2																
	3																
	4		65	53	54		831	1308	1302		1.6	0.1	0.1				
	5																
	6																
	7																
	8																
	9																
	10																
	11		63	51	51		905	1251	1272		0.7	0.2	0.1				
	12																
	13																
	14																
	15																
	16																
	17																
	18		59	49	50		824	958	933		1.9	0.1	0.1				
	19																
	20																
	21																
	22																
	23		61	52	52		848	816	822		0.2	<.1	<.1				
	24																
	25																
	26																
	27																
	28																
	29																
	30		62	50	50		857	1133	1140		0.2	0.2	0.2				
	31																
	TOT		310	255	257		4265	5466	5469		4.6						
	HIGH		65	53	54		905	1308	1302		1.9	0.2	0.2				
	LOW		59	49	50		824	816	822		0.2	<.1	<.1				
	AVG		62	51	51		853	1093	1094		0.9	0.1	0.1				
MONTHLY AVG	LIMIT																
7-DAY AVG	LIMIT																
DAILY MAX	LIMIT																

There has been no flow at the R1 sample site.

Principal Executive Officer or Representative _____ Date 1/15/03

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 02/12/01 Ending Yr/Mo./Day 02/12/31 State Code 06 NPDES Permit # 0078948

DAY	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab					
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
TOT																
HIGH																
LOW																
AVG																
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

All the required analysis have been completed. Copies of the results have been sent with the October 02' report.

Principal Executive Officer or Representative _____ Date 1-15-03

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 03/01/01 Ending Yr/Mo./Day 03/01/31 State Code 06 NPDES Permit # 0078948

	DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4		R-1 Flow Weekly MGD	R-3 Flow Weekly MGD
	1															
	2															
	3															
	4															
	5															
	6															
	7															
	8		6.8	9.5	9.3		6.9	7.5	7.7		7.6	22.2	16.0			424.8
	9															
	10															
	11															
	12															
	13															
	14															
	15		6.1	8.9	8.8		6.9	7.6	7.5		5.7	35.2	31.8			509.9
	16															
	17															
	18															
	19															
	20															
	21															
	22		5.6	9.0	9.2		6.9	7.5	7.5		5.9	20.8	17.4			390.4
	23															
	24															
	25															
	26															
	27															
	28															
	29		5.3	8.5	8.2		6.7	7.3	7.3		9.2	32.0	20.0			383.7
	30															
	31															
	TOT		23.8	35.9	35.5		27.4	29.9	30.0		28.4	110.2	85.2			1708.8
	HIGH		6.8	9.5	9.3		6.9	7.6	7.7		9.2	35.2	31.8			509.9
	LOW		5.3	8.5	8.2		6.7	7.3	7.3		5.7	20.8	16.0			383.7
	AVG		6.0	9.0	8.9		6.9	7.5	7.5		7.1	27.6	21.3			427.2
MONTHLY AVG	LIMIT															
7-DAY AVG	LIMIT															
DAILY MIN	LIMIT		<5.0		<5.0											

There has not been any flow at R1 during the month of January.

Principal Executive Officer or Representative _____ Date 2-19-03

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 03/01/01 Ending Yr/Mo./Day 03/01/31

State Code 06

NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6																
7																
8		62.0	48.0	48.0		842	1380	1390		1.00	<0.2	<0.2				
9																
10																
11																
12																
13																
14																
15		64.2	53.9	54.3		860	1156	1177		<0.2	<0.2	<0.2				
16																
17																
18																
19																
20																
21																
22		62.0	51.0	51.0		825	1470	1474		0.40	0.60	0.50				
23																
24																
25																
26																
27																
28																
29		64.0	54.0	54.0		820	1545	1555		1.30	0.50	0.50				
30																
31																
TOT		252.2	206.9	207.3		3347	5551	5596								
HIGH		64.2	54.0	54.3		860	1545	1555		1.30	0.60	0.50				
LOW		62.0	48.0	48.0		820	1156	1177		<0.2	<0.2	<0.2				
AVG		63.1	51.7	51.8		837	1388	1399		0.67	0.28	0.20				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

There has not been any flow at R1 this month.

Principal Executive Officer or Representative _____ Date 2-19-03

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 03/01/01 Ending Yr/Mo./Day 03/01/31

State Code 05

NPDES Permit # 0078948

	DATE	Chlorpyrifos Quarterly grab ug/l				Diazinon Quarterly grab ug/l				Priority Pollutants		
		R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
	1											
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10											
	11											
	12											
	13											
	14											
	15											
	16											
	17											
	18											
	19											
	20											
	21											
	22											
	23											
	24											
	25											
	26											
	27											
	28											
	29											
	30											
	31											
	TOT											
	HIGH											
	LOW											
	AVG											
MONTHLY AVG	LIMIT											
7-DAY AVG	LIMIT											
DAILY MAX	LIMIT											

NO SAMPLES COLLECTED FOR THESE ANALYTES THIS MONTH.

Principal Executive Officer or Representative _____ Date 2-19-03

Facility I.D. [5C500108001] Reporting Period beginning Yr/Mo./Day 03/02/01 Ending Yr/Mo./Day 03/02/28 State Code 06 NPDES Permit # 0078948

	Dissolved OXYGEN Weekly Grab mg/L				pH Weekly Grab standard units				NTU Weekly Grab NTU units					R-1 Flow Weekly	R-3 Flow Weekly
DATE	R-1 mg/l	R-2 mg/l	R-3 mg/l	R-4 mg/l	R-1	R-2	R-3	R-4	R-1 NTU	R-2 NTU	R-3 NTU	R-4 NTU		MGD	MGD
1															
2															
3															
4															
5		7.2	10.6	10.5		6.9	7.6	7.7		2.8	17	14.5			399.7
6															
7															
8															
9															
10															
11															
12		7.2	9.6	9.3		7	7.6	7.6		3.5	20.1	18.2			378.9
13															
14															
15															
16															
17															
18															
19		7.7	9.9	9.8		7.2	7.7	7.7		3.8	33.1	22			402.9
20															
21															
22															
23															
24															
25															
26		7.4	8.6	8.7		6.8	7.4	7.4		2.5	31.8	22.7			467.3
27															
28															
29															
30															
31															
TOT		29.5	38.7	38.3		27.9	30.3	30.4		12.6	102	77.4			1648.8
HIGH		7.7	10.6	10.5		7.2	7.7	7.7		3.8	33.1	22.7			467.3
LOW		7.2	8.6	8.7		6.8	7.4	7.4		2.5	17.0	14.5			378.9
AVG		7.4	9.7	9.6		7.0	7.6	7.6		3.2	25.5	19.4			412.2
MONTHLY AVG LIMIT															
7-DAY AVG LIMIT															
DAILY MIN LIMIT		<5.0		<5.0											

There was no flow at R1 sample site. No samples were taken.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 3-17-03

Facility I.D. [5C500108001] Reporting Period beginning Yr/Mo./Day 03/02/01 Ending Yr/Mo./Day 03/02/28 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5		57.2	49.1	49.1		871	1516	1498		0.6	0.1	0.2				
6																
7																
8																
9																
10																
11																
12		64.0	52.0	52.0		886	1652	1648		0.3	0.2	0.2				
13																
14																
15																
16																
17																
18																
19		63.7	52.5	52.0		868	1517	1518		<0.2	<0.2	<0.2				
20																
21																
22																
23																
24																
25																
26		63.5	56.1	57.0		821	1480	1473		<0.2	<0.2	<0.2				
27																
28																
29																
30																
31																
TOT		248.4	209.7	210.1		3446	6165	6137		0.9	0.3	0.4				
HIGH		64.0	56.1	57.0		886	1652	1648		0.6	0.2	0.2				
LOW		57.2	49.1	49.1		821	1480	1473		<0.2	<0.2	<0.2				
AVG		62.1	52.4	52.5		862	1541	1534		0.5	0.2	0.2				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

There was no flow at R1 sample site. No samples were taken.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 5-17-03

[5C500108001]

Reporting Period beginning Yr/Mo./Day 03/02/01 Ending Yr/Mo./Day 03/02/28

NPDES nit # 0078948

State Code 06

DATE	Chlorpyrifos Quarterly grab ug/l				Diazinon Quarterly Grab ug/l				Priority Pollutants		
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
TOT											
HIGH											
LOW											
AVG											
MONTHLY AVG. LIMIT											
7-DAY AVG LIMIT											
DAILY MAX LIMIT											

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Facility I.D. [5C500108001] Reporting Period beginning Yr/Mo./Day 03/03/01 Ending Yr/Mo./Day 03/03/31 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l				pH Weekly Grab units				NTU Weekly Grab units				R-1 Flow Weekly	R-3 Flow Weekly
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	MGD	MGD
1														
2														
3														
4														
5		6.8	9.0	9.0		6.9	7.4	7.4		4.0	31.5	25.5		500.5
6														
7														
8														
9														
10														
11														
12	8.8	7.9	8.2	8.3	7.2	6.9	7.2	7.4	7.8	8.1	26.6	20.1	1.60	543.9
13														
14														
15														
16														
17														
18														
19	11.3	8.2	10.1	10.2	7.7	7.1	7.5	7.6	13.6	5.2	28.4	22.2	1.47	570.9
20														
21														
22														
23														
24														
25														
26	9.1	7.6	8.5	8.4	7.6	7.2	7.6	7.7	6.8	4.6	30.1	25.5	1.43	452.0
27														
28														
29														
30														
31														
TOT	29.2	30.5	35.8	35.9	22.5	28.1	29.7	30.1	28.2	21.9	116.6	93.3	4.50	2067.3
HIGH	11.3	8.2	10.1	10.2	7.7	7.2	7.6	7.7	13.6	8.1	31.5	25.5	1.60	570.9
LOW	8.8	6.8	8.2	8.3	7.2	6.9	7.2	7.4	6.8	4.0	26.6	20.1	1.43	452.0
AVG	9.7	7.6	9.0	9.0	7.5	7.0	7.4	7.5	9.4	5.5	29.2	23.3	1.50	516.8
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 4-16-03

Facility I.D. [5C500108001] Reporting Period beginning Yr/Mo./Day 03/03/01 Ending Yr/Mo./Day 03/03/31 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5		65.7	55.4	56.0		827	1532	1560		0.1	0.1	0.1				
6																
7																
8																
9																
10																
11																
12	61.7	66.7	62.6	63.1	238	684	1524	1398	0.1	0.1	0.3	0.1				
13																
14																
15																
16																
17													300	240	1600	1600
18																
19	59.0	65.6	58.0	58.0	106	776	1616	1601	0.4	0.2	0.2	0.2				
20																
21																
22																
23																
24																
25																
26	64.8	67.8	63.1	63.0	152	671	1582	1490	0.9	0.1	0.4	0.3				
27																
28																
29																
30																
31																
TOT	185.5	265.8	239.1	240.1	496	2958	6254	6049	1.4	0.5	1.0	0.7	300	240	1600	1600
HIGH	64.8	67.8	63.1	63.1	238	827	1616	1601	0.9	0.2	0.4	0.3	300	240	1600	1600
LOW	59.0	65.6	55.4	56.0	106	671	1524	1398	0.1	0.1	0.1	0.1	300	240	1600	1600
AVG.	61.8	66.5	59.8	60.0	165	740	1564	1512	0.5	0.1	0.3	0.2	300	240	1600	1600
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

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Principal Executive Officer or Representative _____ Date 4-16-03

Facility I.D. [5C500108001] Reporting Period beginning Yr/Mo./Day 03/03/01 Ending Yr/Mo./Day 03/03/31 State Code 06 NPDES Permit # 0078948

	DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
	1										********	
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10											
	11											
	12											
	13											
	14											
	15											
	16											
	17	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02			
	18											
	19											
	20											
	21											
	22											
	23											
	24											
	25											
	26											
	27											
	28											
	29											
	30											
	31											
	TOT											
	HIGH	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02			
	LOW	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02			
	AVG	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02			
MONTHLY AVG	LIMIT											
7-DAY AVG	LIMIT											
DAILY MAX	LIMIT											

See attached sheets for Plant Effluent Quarterly Priority Pollutants, semi-annual Plant Effluent Standard Minerals and the Water Supply Monitoring data.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 4-16-03

Facil I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 03/04/01 Ending Yr/Mo./Day 03/04/30 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l				pH Weekly Grab units				NTU Weekly Grab units				FLOW WEEKLY MGD	
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R1	R3
1														
2	8.8	7.1	7.9	8.0	7.8	7.2	7.2	7.2	5.9	4.0	32.0	22.2	1.5	368.7
3														
4														
5														
6														
7														
8														
9	8.8	7.8	8.1	8.2	7.3	6.9	7.3	7.4	3.1	3.4	24.5	22.5	7.5	331.3
10														
11														
12														
13														
14														
15														
16	9.4	8.9	8.9	8.4	7.0	6.8	7.0	7.1	4.4	3.6	21.4	26.8	16.9	436.6
17														
18														
19														
20														
21														
22														
23	9.2	9.3	8.8	8.1	6.9	6.7	6.9	6.8	7.1	6.0	17.0	18.5	31.5	480.4
24														
25														
26														
27														
28														
29														
30	8.9	7.8	8.9	8.8	7.0	7.0	7.3	7.3	3.1	3.0	14.7	13.9	16.8	426.7
31														
TOT	45.1	40.9	42.6	41.5	36.0	34.6	35.7	35.8	23.6	19.9	109.6	103.9	83.1	2043.7
HIGH	9.4	9.3	8.9	8.8	7.8	7.2	7.3	7.4	7.1	6.0	32.0	26.8	31.5	480.4
LOW	8.8	7.1	7.9	8.0	6.9	6.7	6.9	6.8	3.1	3.0	14.7	13.9	7.5	331.3
AVG	9.0	8.2	8.5	8.3	7.2	6.9	7.1	7.2	4.7	4.0	21.9	20.8	16.6	408.7
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		>5.0		>5.0										

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 5/19/03

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 03/04/01 Ending Yr/Mo./Day 03/04/30

State Code 06

NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2	66	65	57	58	227	760	1531	1462	0.8	0.2	0.2	0.1				
3																
4																
5																
6																
7																
8																
9	61	66	62	62	277	553	1588	1497	0.5	0.4	<0.2	<0.2				
10																
11																
12																
13																
14																
15																
16	60	62	59	59	176	445	984	992	0.2	0.1	0.2	0.1				
17																
18																
19																
20																
21																
22																
23	62	62	63	63	122	268	887	816	0.5	0.4	0.3	0.2				
24																
25																
26																
27																
28																
29																
30	61	65	58	58	376	682	1010	919	0.4	0.1	0.1	0.1				
31																
TOT	310	320	298	301	1178	2708	6000	5686	2.4	1.2	0.8	0.5				
HIGH	66	66	63	63	376	760	1588	1497	0.8	0.4	0.3	0.2				
LOW	60	62	57	58	122	268	887	816	0.2	0.1	0.1	0.1				
AVG	62	64	60	60	236	542	1200	1137	0.5	0.2	0.2	0.1				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal E› › Officer or Representative _____ Date 5/19/03

Facil' I.D. 3500108001] Reporting Period beginning Yr/Mo./Da 03/04/01 Ending Yr/Mo./Day 03/04/30 State Code 06 NPDES Permit # 0078...

	DATE	Chlorpyrifos Quarterly grab ug/l				Diazinon Quarterly grab ug/l				Priority Pollutants		
		R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
	1									#####		
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10											
	11											
	12											
	13											
	14											
	15											
	16											
	17											
	18											
	19											
	20											
	21											
	22											
	23											
	24											
	25											
	26											
	27											
	28											
	29											
	30											
	31											
	TOT											
	HIGH											
	LOW											
	AVG											
MONTHLY AVG	LIMIT											
7-DAY AVG	LIMIT											
DAILY MAX	LIMIT											

The Plant Influent Priority Pollutants semi-annual results are enclosed.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 5/19/03

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 03/05/01 Ending Yr/Mo./Day 03/05/31 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	Flow Weekly MGD R1	R3
1														
2														
3														
4														
5														
6														
7	6.5	6.8	7.0	6.9	6.9	7.0	6.7	6.9	2.9	4.3	21.2	18.5	4.0	810.5
8														
9														
10														
11														
12														
13														
14	5.6	6.0	7.5	7.4	7.1	7.0	7.4	7.5	3.6	6.9	28.7	22.8	3.8	642.7
15														
16														
17														
18														
19														
20														
21	7.8	8.1	7.7	8.0	6.8	6.9	7.2	7.1	3.5	3.2	33.0	20.6	10.0	335
22														
23														
24														
25														
26														
27														
28	8.3	7.7	7.0	7.5	7.1	6.9	7.1	7.2	4.6	3.6	26.2	18.9	4.1	300.2
29														
30														
31														
TOT	28.2	28.6	29.2	29.8	27.9	27.8	28.4	28.7	14.6	18.0	109.1	80.8	21.9	2088.4
HIGH	8.3	8.1	7.7	8.0	7.1	7.0	7.4	7.5	4.6	6.9	33.0	22.8	10.0	810.5
LOW	5.6	6.0	7.0	6.9	6.8	6.9	6.7	6.9	2.9	3.2	21.2	18.5	3.8	300.2
AVG	7.1	7.2	7.3	7.5	7.0	7.0	7.1	7.2	3.7	4.5	27.3	20.2	5.5	522.1
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Execu' 'fficer or Representative _____ Date 6/12/03

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 03/05/01 Ending Yr/Mo./Day 03/05/31

State Code 06

NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F R-1	R-2	R-3	R-4	Electrical Conductivity Weekly Grab umhos/cm R-1	R-2	R-3	R-4	Ammonia as N Weekly Grab mg/l R-1	R-2	R-3	R-4	Fecal Coliform Quarterly grab MPN/100ml R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6																
7	64	64	59	60	364	447	579	598	0.3	0.3	0.1	0.4				
8																
9																
10																
11																
12																
13																
14	70	72	64	64	121	809	750	795	0.3	1.9	0.1	0.2				
15																
16																
17																
18																
19																
20																
21	69	68	71	71	359	495	1166	1106	0.8	0.1	5.4	2.5				
22																
23																
24																
25																
26																
27																
28	73	75	76	76	183	493	1360	1047	0.1	0.1	0.3	0.1				
29																
30																
31																
TOT.	276	279	270	271	1027	2244	3855	3546	1.5	2.4	5.9	3.2				
HIGH	73	75	76	76	364	809	1360	1106	0.8	1.9	5.4	2.5				
LOW	64	64	59	60	121	447	579	598	0.1	0.1	0.1	0.1				
AVG	69	70	68	68	257	561	964	887	0.4	0.6	1.5	0.8				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 6-12-03

Facility I.D. 500108001]

Reporting Period Beginning Yr/Mo./Day 03/05/01 Ending Yr/Mo./Day 03/05/31

State Code 06

NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
1											
2											
3											
4											
5										**********	
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
TOT											
HIGH											
LOW											
AVG											
MONTHLY AVG LIMIT											
7-DAY AVG LIMIT											
DAILY MAX LIMIT											

******** The attached sheets are the results of the 2nd quarter Priority Pollutants for the Plant Effluent.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 6-12-03

Facility I.D [5C500108001] Reporting Period Beginning Yr/Mo./Day 03/06/01 ding Yr/Mo./Day 03/06/30 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	Flow Weekly MGD R1	R3
1														
2														
3														
4														
5														
6														
7	6.5	6.8	7.0	6.9	6.9	7.0	6.7	6.9	2.9	4.3	21.2	18.5	4.0	810.5
8														
9														
10														
11														
12														
13														
14	5.6	6.0	7.5	7.4	7.1	7.0	7.4	7.5	3.6	6.9	28.7	22.8	3.8	642.7
15														
16														
17														
18														
19														
20														
21	7.8	8.1	7.7	8.0	6.8	6.9	7.2	7.1	3.5	3.2	33.0	20.6	10.0	335.0
22														
23														
24														
25														
26														
27														
28	8.3	7.7	7.0	7.5	7.1	6.9	7.1	7.2	4.6	3.6	26.2	18.9	4.1	300.2
29														
30														
31														
TOT	28.2	28.6	29.2	29.8	27.9	27.8	28.4	28.7	14.6	18.0	109.1	80.8	21.9	2088.4
HIGH	8.3	8.1	7.7	8.0	7.1	7.0	7.4	7.5	4.6	6.9	33.0	22.8	10.0	810.5
LOW	5.6	6.0	7.0	6.9	6.8	6.9	6.7	6.9	2.9	3.2	21.2	18.5	3.8	300.2
AVG	7.1	7.2	7.3	7.5	7.0	7.0	7.1	7.2	3.7	4.5	27.3	20.2	5.5	522.1
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative [signature] Date 7-9-03

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 03/06/01 Ending Yr/Mo./Day 03/06/30 State Code 06 NPDES Permit # 0078948

DATE	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6																
7	64	64	59	60	364	447	579	598	0.3	0.3	0.1	0.4	900	280	50	900
8																
9																
10																
11																
12																
13																
14	70	72	64	64	121	809	750	795	0.3	1.9	0.1	0.2				
15																
16																
17																
18																
19																
20																
21	69	68	71	71	359	495	1166	1106	0.8	0.1	5.4	2.5				
22																
23																
24																
25																
26																
27																
28	73	75	76	76	183	493	1360	1047	0.1	0.1	0.3	0.1				
29																
30																
31																
TOT	276	279	270	271	1027	2244	3855	3546	1.5	2.4	5.9	3.2				
HIGH	73	75	76	76	364	809	1360	1106	0.8	1.9	5.4	2.5	900	280	50	900
LOW	64	64	59	60	121	447	579	598	0.1	0.1	0.1	0.1	900	280	50	900
AVG	69	70	68	68	257	561	964	887	0.4	0.6	1.5	0.8	900	280	50	900
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 7-9-03

Facility I.D. 500108001] Reporting Period Beginning Yr/Mo./Day 03/06/01 Ending Yr/Mo./Day 03/06/30 State Code 06 NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l R-1	R-2	R-3	R-4	Diazinon Quarterly grab ug/l R-1	R-2	R-3	R-4	Priority Pollutants Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
1											
2	<.01	<.01	<.01	<.01	<0.02	<0.02	<0.02	<0.02			*********
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
TOT											
HIGH	<.01	<.01	<.01	<.01	<0.02	<0.02	<0.02	<0.02			
LOW	<.01	<.01	<.01	<.01	<0.02	<0.02	<0.02	<0.02			
AVG	<.01	<.01	<.01	<.01	<0.02	<0.02	<0.02	<0.02			
MONTHLY AVG LIMIT											
7-DAY AVG LIMIT											
DAILY MAX LIMIT											

**********The attached sheets are the Outfall Priority Pollutants semi-annual results.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 7-9-03

Page

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 03/07/01 Ending Yr/Mo./Day 03/07/31 State Code 06 NPDES Permit # 0078948

DATE	Dissolved Oxygen Weekly Grab mg/l R-1	R-2	R-3	R-4	pH Weekly Grab units R-1	R-2	R-3	R-4	NTU Weekly Grab units R-1	R-2	R-3	R-4	Flow Weekly MGD R1	R3
1														
2	8.7	8.3	7.2	7.5	7.1	7.0	7.2	7.6	7.4	5.9	55.8	61.7	27.1	243.3
3														
4														
5														
6														
7														
8														
9	8.2	8.3	6.9	7.2	7.5	7.4	7.4	7.7	5.7	5.1	77.3	65.0	42.8	274.8
10														
11														
12														
13														
14														
15														
16	8.2	6.7	6.1	6.6	7.5	7.2	7.9	8.0	4.4	3.3	149.0	114.0	27.1	219.3
17														
18														
19														
20														
21														
22														
23		5.3	6.4	6.4		7.2	7.2	7.4		4.0	81.2	106.0		149.3
24														
25														
26														
27														
28														
29														
30	8.3	8.4	6.5	6.5	7.2	7.3	7.8	7.9	5.4	4.0	62.7	68.3	21.0	245.1
31														
TOT	33.4	37.0	33.1	34.2	29.3	36.1	37.5	38.6	22.9	22.3	426.0	415.0	118.1	1131.8
HIGH	8.7	8.4	7.2	7.5	7.5	7.4	7.9	8.0	7.4	5.9	149.0	114.0	42.8	274.8
LOW	8.2	5.3	6.1	6.4	7.1	7.0	7.2	7.4	4.4	3.3	55.8	61.7	21.0	149.3
AVG	8.4	7.4	6.6	6.8	7.3	7.2	7.5	7.7	5.7	4.5	85.2	83.0	29.5	226.4
MONTHLY AVG LIMIT														
7-DAY AVG LIMIT														
DAILY MIN LIMIT		<5.0		<5.0										

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative [signature] Date 8-14-03

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 03/07/01 Ending Yr/Mo./Day 03/07/31 State Code 06 NPDES Permit # 0078948

	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
DATE	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2	70.3	69.6	76.6	75.9	152	248	1209	1212	0.6	1.6	0.2	0.7				
3																
4																
5																
6																
7																
8																
9	70.3	71.8	72.7	73.4	197	253	1304	1246	0.3	0.9	0.1	0.3				
10																
11																
12																
13																
14																
15																
16	67.8	70.5	71.8	72.1	291	699	1139	1142	0.6	0.2	0.2	0.2				
17																
18																
19																
20																
21																
22																
23		80.5	78.0	79.0		884	1225	1205		0.7	0.2	0.2				
24																
25																
26																
27																
28																
29																
30	76.0	77.0	79.0	80.0	171	271	1096	1015	0.4	0.5	0.8	0.4				
31																
TOT	284.4	369.4	378.1	380.4	811	2355	5973	5820	1.9	3.9	1.5	1.8				
HIGH	76.0	80.5	79.0	80.0	291	884	1304	1246	0.6	1.6	0.8	0.7				
LOW	67.8	69.6	71.8	72.1	152	248	1096	1015	0.3	0.2	0.1	0.2				
AVG	71.1	73.9	75.6	76.1	203	471	1195	1164	0.5	0.8	0.3	0.4				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 8-24-03

Facility I.D. 2500108001]

Reporting Period Beginning Yr/Mo./Day 03/07/01 Ending Yr/Mo./Day 03/07/31

State Code 06

NPDES Permit # 0078948

DATE	Chlorpyrifos Quarterly grab ug/l				Diazinon Quarterly grab ug/l				Priority Pollutants		
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
1											
2									XXXXX		
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
TOT											
HIGH											
LOW											
AVG											
MONTHLY AVG LIMIT											
7-DAY AVG LIMIT											
DAILY MAX LIMIT											

Comments: The results for the second set of Influent Priority Pollutants is enclosed.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Exer Officer or Representative _____ Date 8-14-03

Facility I.D. [5C500108001] Reporting Period Beginning Yr/Mo./Day 03/08/01 Ending Yr/Mo./Day 03/08/31 State Code 06 NPDES Permit # 0078948

Day	Dissolved Oxygen Weekly Grab mg/l				pH Weekly Grab units				NTU Weekly Grab units					R-1 Flow Weekly	R-3 Flow Weekly
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4		MGD	MGD
1															
2															
3															
4															
5															
6	8.8	8.9	7.7	7.5	7.4	7.4	7.8	7.9	4.8	3.9	46.4	50.7		19.4	259.6
7															
8															
9															
10															
11															
12															
13	8.3	7.5	7.8	8.0	7.6	7.2	8.0	7.8	2.1	1.4	32.3	22.2		5.4	252.2
14															
15															
16															
17															
18															
19															
20	7.9	8.0	8.0	8.2	7.7	7.6	8.1	8.1	2.3	1.9	28.7	20.9		4.2	179.9
21															
22															
23															
24															
25															
26															
27	8.0	8.9	6.5	7.2	7.7	7.8	8.0	8.0	1.4	1.4	60.0	27.0		15.1	175.5
28															
29															
30															
31															
TOT	33.0	33.3	30.0	30.9	30.4	30.0	31.9	31.8	10.6	8.6	167.4	120.8		44.0	867.2
HIGH	8.8	8.9	8.0	8.2	7.7	7.8	8.1	8.1	4.8	3.9	60.0	50.7		19.4	259.6
LOW	7.9	7.5	6.5	7.2	7.4	7.2	7.8	7.8	1.4	1.4	28.7	20.9		4.2	175.5
AVG	8.3	8.3	7.5	7.7	7.6	7.5	8.0	8.0	2.7	2.2	41.9	30.2		11.0	216.8
MONTHLY AVG LIMIT															
7-DAY AVG LIMIT															
DAILY MIN LIMIT		<5.0		<5.0											

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 9-12-03

Facility I.D. [5C500108001]

Reporting Period Beginning Yr/Mo./Day 03/08/01 Ending Yr/Mo./Day 03/08/31

State Code 06

NPDES Permit # 0078948

Day	Temperature Weekly Grab Degree F				Electrical Conductivity Weekly Grab umhos/cm				Ammonia as N Weekly Grab mg/l				Fecal Coliform Quarterly grab MPN/100ml			
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4
1																
2																
3																
4																
5																
6	68.5	68.9	72.1	73.0	189	290	1087	1041	0.05	0.2	0.02	0.2				
7																
8																
9																
10																
11																
12																
13	66.9	77.2	72.7	72.5	362	756	1188	963	0.10	0.3	0.4	0.8				
14																
15																
16																
17																
18																
19																
20	67.6	71.4	73.9	73.4	310	498	1189	1072	0.70	0.6	0.1	0.7				
21																
22																
23																
24																
25																
26																
27	68.7	68.2	74.1	74.1	464	492	1184	1174	1.8	0.1	0.4	0.4				
28																
29																
30																
31																
TOT	271.7	285.7	292.8	293.0	1325	2036	4648	4250	2.65	1.2	0.92	2.1				
HIGH	68.7	77.2	74.1	74.1	464	756	1189	1174	1.8	0.6	0.40	0.8				
LOW	66.9	68.2	72.1	72.5	189	290	1087	963	0.05	0.1	0.02	0.2				
AVG	67.9	71.4	73.2	73.3	331	509	1162	1063	0.66	0.3	0.23	0.5				
MONTHLY AVG LIMIT																
7-DAY AVG LIMIT																
DAILY MAX LIMIT																

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 9-12-03

Facility I.D. 00108001]

Reporting Period Beginning Yr/Mo./Day 03/08/01 Ending Yr/Mo./Day 03/08/31

State Code 06

NPDES Permit # 0078948

Day	Chlorpyrifos Quarterly grab ug/l				Diazinon Quarterly grab ug/l				Priority Pollutants		
	R-1	R-2	R-3	R-4	R-1	R-2	R-3	R-4	Influent Semi-annual	Effluent Quarterly	R-1,2,3,4 Semi-annual grab
1									XXXXXXXX	XXXXXXXX	
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
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26											
27											
28											
29											
30											
31											
TOT											
HIGH											
LOW											
AVG											
MONTHLY AVG LIMIT											
7-DAY AVG LIMIT											
DAILY MAX LIMIT											

Comments: The Priority Pollutant results for the semi-annual Plant Influent and the quarterly Plant Effluent are enclosed.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Principal Executive Officer or Representative _____ Date 9-12-03

EMSL Analytical, Inc
382 South Abbott Avenue, Milpitas, CA 95035
Phone: (408) 934-7010 Fax: (408) 934-7015 Email: milpitaslab@emsl.com

Attn: Priya Sahota
GeoAnalytical Laboratories, Inc.
1405 Kansas Ave
Suite A
Modesto, CA 95351
Fax: (209) 572-0916 Phone: (209) 572-0900
Project: P153-09

Customer ID: GEAL50
Customer PO:
Received: 06/03/03 10:58 AM

EMSL Order: 090301481
EMSL Project ID:
Analysis Date: 6/10/2003

Determination of Asbestos Structures over 10um in Length in Drinking Water Performed by the EPA 100.2 Method

SAMPLE ID	#ASBESTOS FIBERS	# NON-ASBESTOS FIBERS	TYPE(S) OF ASBESTOS	ANALYTICAL SENSITIVITY (MFL)	CONFIDENCE LIMITS	CONCENTRATION OF ASBESTOS FIBERS (MFL)	COMMENTS
Outfall R1-P305226 *090301481-0001*	0	0		0.20	0.00-0.76	<0.76	
Outfall R2-P305227 *090301481-0002*	0	0		0.20	0.00-0.76	<0.76	
Outfall R3-P305228 *090301481-0003*	0	0		5.12	0.00-18.88	<18.88	Sensitivity is above 0.20 d to particulate loading.
Outfall R4-P305229 *090301481-0004*	0	0		5.12	0.00-18.88	<18.88	Sensitivity is above 0.20 due to particulate loading.

Analyst(s)
Patrick Kelleher (4)

or other approved signatory

Sample collection and containers provided by the client, acceptable bottle blank level is defined as <=0.01MFL>10um. ND=None Detected. Fiber counting data will be reported as follows: No Fibers detected: The value will be reported as less than 389% of the concentration equivalent to one fiber. 1 to 4 fibers: The result will be reported as less than the corresponding upper 95% confidence limit (Poisson), 5 to 30 fibers: Mean and 95% confidence intervals will be reported on the basis of the Poisson assumption. When more than 30 fibers are counted, both the Gaussian 95% confidence interval and the Poisson 95% confidence interval will be calculated. The large of these two intervals will be selected for data reporting. When the Gaussian 95% confidence interval is selected for data reporting, the Poisson will also be noted. This report may not be reproduced, except in full, without written permission by EMSL Analytical, Inc.

TEM100-1

THIS IS THE LAST PAGE OF THE REPORT.

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # P153-10

Date: 6/06/03

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Outfall Priority Pollutants

PO#

Date Rec'd: 6/02/03
Date Started: 6/02/03
Date Completed: 6/06/03

Date Sampled: 6/02/03
Time:
Sampler: Scott Rohrer

Sample ID	Lab ID	RL	MDL	Method	Analyte	Results	Units	Flag
Outfall R1	P305230	0.005	0.005	335.2	Cyanide	ND	mg/L	
Outfall R2	P305231	0.005	0.005	335.2	Cyanide	ND	mg/L	
Outfall R3	P305232	0.005	0.005	335.2	Cyanide	ND	mg/L	
Outfall R4	P305233	0.005	0.005	335.2	Cyanide	ND	mg/L	

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # P153-10

Date: 6/12/03

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Outfall Priority Pollutants

PO#

Date Rec'd: 6/02/03
Date Started: 6/05/03
Date Completed: 6/11/03

Date Sampled: 6/02/03
Time: 8:30am
Sampler : Scott Rohrer

Sample ID: Outfall R1
Lab ID: P305230

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	20	17	Acrolein	ND	µg/L	
	2	0.32	Acrylonitrile	ND		
	0.5	0.12	Benzene	ND		
	0.5	0.20	Carbon tetrachloride	ND		
	2	0.16	Chlorobenzene	ND		
	5	0.17	1,2,4-Trichlorobenzene	ND		
	1	0.14	1,1-Dichloroethane	ND		
	0.5	0.40	1,2-Dichloroethane	ND		
	2	0.14	1,1,1-Trichloroethane	ND		
	0.5	0.10	1,1,2-Trichloroethane	ND		
	0.5	0.11	1,1,2,2-Tetrachloroethane	ND		
	2	0.26	Chloroethane	ND		
	0.5	0.12	Chloroform	ND		
	2	0.13	1,2-Dichlorobenzene	ND		
	2	0.11	1,3-Dichlorobenzene	ND		
	2	0.11	1,4-Dichlorobenzene	ND		
	0.5	0.14	1,1-Dichloroethene	ND		
	1	0.17	trans-1,2-Dichloroethylene	ND		
	0.5	0.13	1,2-Dichloropropane	ND		
	0.5	0.19	1,3-Dichloropropene	ND		
	2	0.15	Ethylbenzene	ND		
	2.0	0.37	Chloromethane	ND		
	2	0.91	Bromomethane	ND		
	2	0.11	Bromoform	ND		
	0.5	0.14	Dichlorobromomethane	ND		
	0.5	0.13	Dibromochloromethane	ND		
	0.5	0.18	Tetrachloroethene	ND		
	2	0.14	Toluene	ND		
	2	0.17	Trichloroethene	ND		
	0.5	0.14	Vinyl chloride	ND		
	1	0.26	2-Chloroethyl vinyl Ether	ND		
	0.5	0.14	cis-1,2-Dichloroethene	ND		
	2	0.06	Dichloromethane (Methylene chloride)	ND		
	10	0.16	Naphthalene	ND		
	3	0.15	Methyl-tert-butyl ether (MTBE)	ND		
	5	0.20	Trichlorofluoromethane	ND		
	10	0.16	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		
	0.5	0.11	Styrene	ND		
	0.5	0.34	Xylenes,total	ND		

Report # P153-10

CERTIFICATE OF ANALYSIS

Sample ID: Outfall R1
Lab ID: P305230

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	1	0.30	Hexachlorobutadiene	ND	µg/L	
	1	0.12	Hexachloroethane	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
1,2-Dichloroethane-d_4	5.00	5.97	119.40	72-132
2-Bromo-1-chloropropane	5.00	5.89	117.80	71-134
4-Bromofluorobenzene	5.00	4.69	93.80	74-132

Mario D'Onofrio
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8082

Report # P153-10

Date: 6/09/03

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Outfall Priority Pollutants

PO#

Date Rec'd: 6/02/03
Date Started: 6/04/03
Date Completed: 6/05/03

Date Sampled: 6/02/03
Time: 8:30am
Sampler : Scott Rohrer

Sample ID: Outfall R1
Lab ID: P305230

Method	RL	MDL	Analyte	Results	Units	Flags
8082	0.5	0.05	Arochlor 1016	ND	µg/L	
	0.5	0.14	Arochlor 1221	ND		
	0.5	0.09	Arochlor 1232	ND		
	0.5	0.06	Arochlor 1242	ND		
	0.5	0.15	Arochlor 1248	ND		
	0.5	0.06	Arochlor 1254	ND		
	0.5	0.22	Arochlor 1260	ND		

Gregory Merciadis

Donna Keller

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8081A

Report # P153-10

Date: 6/09/03

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Outfall Priority Pollutants

PO#

Date Rec'd: 6/02/03
Date Started: 6/04/03
Date Completed: 6/04/03

Date Sampled: 6/02/03
Time: 8:30am
Sampler: Scott Rohrer

Sample ID: Outfall R1
Lab ID: P305230

Method	RL	MDL	Analyte	Results	Units	Flags
8081A	0.10	0.09	Alpha-BHC	ND	µg/L	
	0.20	0.11	Gamma-BHC	0.13		DNQ
	0.20	0.11	Heptachlor	ND		
	0.10	0.08	Beta-BHC	ND		
	0.20	0.13	Delta-BHC	ND		
	0.10	0.09	Aldrin	ND		
	0.10	0.10	Heptachlor Epoxide	ND		
	0.10	0.09	Endosulfan 1	ND		
	0.10	0.08	DDE	ND		
	0.10	0.07	Dieldrin	ND		
	0.10	0.09	Endrin	ND		
	0.20	0.13	DDD	ND		
	0.10	0.05	Endosulfan 2	ND		
	0.10	0.08	DDT	ND		
	0.10	0.07	Endrin Aldehyde	ND		
	0.30	0.22	Endosulfan Sulfate	ND		
	10	0.31	Methoxychlor	ND		
	0.50	0.50	Toxaphene	ND		
	0.50	0.50	Chlordane	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
TCMX	0.25	0.22	88.0	63.2-121
DBC	0.50	0.45	90.0	68.2-135

Gregory Mergiadis

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

622

Report # P153-10

Date: 6/04/03

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Outfall Priority Pollutants

PO#

Date Rec'd: 6/02/03
Date Started: 6/03/03
Date Completed: 6/03/03

Date Sampled: 6/02/03
Time: 8:30am
Sampler : Scott Rohrer

Sample ID: Outfall R1
Lab ID: P305230

Method	RL	MDL	Analyte	Results	Units	Flags
622	0.08	0.02	Diazinon	ND	µg/L	
	0.08	0.01	Chlorpyriphos	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Tributyl Phosphate	5.00	4.64	92.8	60-130

Gregory Merciadis

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # P153-10

Date: 6/06/03

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Outfall Priority Pollutants

PO#

Date Rec'd: 6/02/03
Date Started: 6/02/03
Date Completed: 6/05/03

Date Sampled: 6/02/03
Time: 8:30am
Sampler: Scott Rohrer

Sample ID: Outfall R1
Lab ID: P305230

Method	RL	MDL	Analyte	Results	Units	Flag
200.8	10	0.04	Antimony	ND	µg/L	
200.8	5.0	0.49	Arsenic	ND	µg/L	
200.8	10	0.02	Beryllium	ND	µg/L	
200.8	2.0	0.04	Cadmium	ND	µg/L	
200.8	20	0.079	Chromium	ND	µg/L	
200.8	0.5	0.13	Copper	ND	µg/L	
200.8	0.5	0.13	Dissolved Copper	ND	µg/L	
200.8	10	0.035	Lead	ND	µg/L	
200.8	20	0.12	Nickel	ND	µg/L	
200.8	5.0	0.27	Selenium	ND	µg/L	
200.8	10	0.01	Silver	ND	µg/L	
200.8	200	0.02	Thallium	ND	µg/L	
200.8	10	0.35	Zinc	55	µg/L	
200.8	50	20	Boron	64	µg/L	

Rohit Bombaywala

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8270C

Report # P153-10

Date: 6/10/03

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Outfall Priority Pollutants

PO#

Date Rec'd: 6/02/03
Date Started: 6/05/03
Date Completed: 6/06/03

Sample ID: Outfall R1
Lab ID: P305230

Date Sampled: 6/02/03
Time: 8:30am
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	1	0.2	Phenol	ND	µg/L	
	1	0.2	Bis(2-chloroethyl) Ether	ND		
	2	0.9	2-Chlorophenol	ND		
	10	1.1	Bis(2-chloroisopropyl) Ether	ND		
	5	0.8	N-Nitroso-di-n-propylamine	ND		
	10	1.7	Nitrobenzene	ND		
	1	0.2	Isophorone	ND		
	10	2.3	2-Nitrophenol	ND		
	2	1.0	2,4-Dimethylphenol	ND		
	5	3.3	Bis(2-chloroethoxy)methane	ND		
	1	0.3	2,4-Dichlorophenol	ND		
	5	3.2	4-Chloro-3-methylphenol	ND		
	5	2.6	Hexachlorocyclopentadiene	ND		
	10	1.8	2,4,6-Trichlorophenol	ND		
	10	1.1	2-Chloronaphthalene	ND		
	2	1.0	Dimethyl Phthalate	ND		
	10	1.0	Acenaphthylene	ND		
	1	0.7	Acenaphthene	ND		
	5	3.2	2,4-Dinitrophenol	ND		
	10	4.1	4-Nitrophenol	ND		
	5	3.0	2,4-Dinitrotoluene	ND		
	5	1.4	2,6-Dinitrotoluene	ND		
	2	0.6	Diethylphthalate	ND		
	5	0.8	4-Chloro-phenylphenylether	ND		
	10	0.9	Fluorene	ND		
	10	7.5	4,6-Dinitro-2-methylphenol	ND		
	1	0.9	N-Nitrosodiphenylamine	ND		
	10	1.0	4-Bromophenyl-phenylether	ND		
	1	0.7	Hexachlorobenzene	ND		
	1	0.6	Pentachlorophenol	ND		
	5	0.4	Phenanthrene	ND		
	10	1.2	Anthracene	ND		
	2	0.4	Benzo(b)fluoranthene	ND		

Report # P153-10

CERTIFICATE OF ANALYSIS
8270C

Sample ID: Outfall R1
Lab ID: P305230

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	10	0.3	Di-n-butylphthalate	ND	µg/L	
	10	0.6	Fluoranthene	ND		
	10	1.3	Pyrene	ND		
	10	1.6	Butylbenzylphthalate	ND		
	5	2.2	3,3'-Dichlorobenzidine	ND		
	5	0.8	Bis(2-ethylhexyl)phthalate	ND		
	5	1.1	Chrysene	ND		
	10	1.3	Di-n-octylphthalate	ND		
	3	2.5	Benzo(k)fluoranthene	ND		
	2	0.9	Benzo(a)pyrene	ND		
	0.5	0.5	Indeno(1,2,3-c,d)pyrene	ND		
	0.4	0.4	Dibenzo(a,h)anthracene	ND		
	5	1.0	Benzo(g,h,i)perylene	ND		
	1	1.0	1,2-Diphenyl hydrazine	ND		
	5	2.5	Benzidine	ND		
	5	2.1	N-Nitrodimethylamine	ND		
	5	2.5	1,2-Benzanthracene	ND		
	5	2.5	Di(2-ethylhexyl) adipate	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
Nitrobenzene-d_5	100	61.69	61.69	35-114
2-Fluorobiphenyl	100	68.30	68.30	43-141
Terphenyl-d_{14}	100	85.97	85.97	33-141
2-Fluorophenol	150	68.51	45.67	21-100
Phenol-d_6	150	28.20	18.80	10-94
2,4,6-Tribromophenol	150	129.19	86.13	10-123

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

basic laboratory
www.basiclab.com
voice 530.243.7234 2218 Railroad Avenue
fax 530.243.7494 Redding, California 96001

WATER CODE SECTION 13267 (CTR) - METALS

Report To:	GEOANALYTICAL LABORATORIES, INC 1405 KANSAS AVENUE MODESTO, CA 95351	*Lab Number:*	3060074-01
		Date:	06/10/03
		Phone:	209-572-0900
		Date Sampled:	06/02/03
Attention:	PRIYA SAHOTA	*Date Received:*	06/03/03
		Project No.:	P153-07
Project Name:			
Description:	OUTFALL R1-P305217	*Page 1 of 5 - Metals*	

CTR No.	Method	Test	Units	Results	Qualifier	CQL	MDL	RL	Date Analyzed
8	1631	Mercury	ng/l	4.50		0.5	0.20	0.50	06/04/03

Comments: California D.O.H.S. Cert. #1677.
ND - Not detected. RL - Minimum Level of Quantitation.
MDL- Method Detection Limit. DNQ Est. Conc. - Detected, but not Quantified.
ng/l - Nanogram/liter. ug/l - Microgram/liter. CQL - Criterion Quantitation Limit.

Reported by:

GEOANALYTICAL LABORATORIES INC

Client Sample ID: OUTFALL R1-P305222

Trace Level Organic Compounds

Lot-Sample #...: G3F030183-001 Work Order #...: FPTQT1AA Matrix.....: WATER
Date Sampled...: 06/02/03 Date Received..: 06/03/03
Prep Date.....: 06/07/03 Analysis Date..: 06/10/03
Prep Batch #...: 3158180

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	3.8	pg/L	SW846 8290
1,2,3,7,8-PeCDD	ND	6.6	pg/L	SW846 8290
1,2,3,4,7,8-HxCDD	ND	6.0	pg/L	SW846 8290
1,2,3,6,7,8-HxCDD	ND	6.2	pg/L	SW846 8290
1,2,3,7,8,9-HxCDD	ND	5.7	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	6.6	pg/L	SW846 8290
OCDD	ND	8.8	pg/L	SW846 8290
2,3,7,8-TCDF	ND	2.6	pg/L	SW846 8290
1,2,3,7,8-PeCDF	ND	3.9	pg/L	SW846 8290
2,3,4,7,8-PeCDF	ND	3.8	pg/L	SW846 8290
1,2,3,4,7,8-HxCDF	ND	3.8	pg/L	SW846 8290
1,2,3,6,7,8-HxCDF	ND	3.7	pg/L	SW846 8290
2,3,4,6,7,8-HxCDF	ND	3.9	pg/L	SW846 8290
1,2,3,7,8,9-HxCDF	ND	4.2	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	3.2	pg/L	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	3.9	pg/L	SW846 8290
OCDF	ND	8.7	pg/L	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	95	(40 - 135)
13C-1,2,3,7,8-PeCDD	99	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	98	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	88	(40 - 135)
13C-OCDD	83	(40 - 135)
13C-2,3,7,8-TCDF	108	(40 - 135)
13C-1,2,3,7,8-PeCDF	107	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	90	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	90	(40 - 135)

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/13/02
Date Completed: 6/13/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_1
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	20	17	Acrolein	ND	µg/L	
	2	0.32	Acrylonitrile	ND		
	0.5	0.12	Benzene	ND		
	0.5	0.20	Carbon tetrachloride	ND		
	2	0.16	Chlorobenzene	ND		
	5	0.17	1,2,4-trichlorobenzene	ND		
	1	0.14	1,1-dichloroethane	ND		
	0.5	0.40	1,2-dichloroethane	ND		
	2	0.14	1,1,1-trichloroethane	ND		
	0.5	0.10	1,1,2-trichloroethane	ND		
	0.5	0.11	1,1,2,2-tetrachloroethane	ND		
	2	0.26	Chloroethane	ND		
	0.5	0.12	Chloroform	ND		
	2	0.13	1,2-dichlorobenzene	ND		
	2	0.11	1,3-dichlorobenzene	ND		
	2	0.11	1,4-dichlorobenzene	ND		
	0.5	0.14	1,1-dichloroethene	ND		
	1	0.17	trans-1,2-dichloroethene	ND		
	0.5	0.13	1,2-dichloropropane	ND		
	0.5	0.19	1,3-dichloropropene	ND		
	2	0.15	Ethylbenzene	ND		
	2.0	0.37	Chloromethane	ND		
	2	0.91	Bromomethane	ND		
	2	0.11	Bromoform	ND		
	0.5	0.14	Dichlorobromomethane	ND		
	0.5	0.13	Dibromochloromethane	ND		
	0.5	0.18	Tetrachloroethene	ND		
	2	0.14	Toluene	ND		
	2	0.17	Trichloroethene	ND		
	0.5	0.14	Vinyl chloride	ND		
	1	0.26	2-Chloroethyl vinyl Ether	ND		
	0.5	0.14	cis-1,2-Dichloroethene	ND		
	2	0.06	Dichloromethane (Methylene chloride)	ND		
	10	0.16	Naphthalene	ND		
	3	0.15	Methyl-tert-butyl ether (MTBE)	ND		
	5	0.20	Trichlorofluoromethane	ND		
	10	0.16	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		
	0.5	0.11	Styrene	ND		
	0.5	0.34	Xylenes,total	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
1,2-Dichloroethane-d_4	5.00	5.53	110.6	72-132
2-Bromo-1-chloropropane	5.00	5.60	112.0	71-13[illegible]
4-Bromofluorobenzene	5.00	4.78	95.6	74-13[illegible]

Mario D'Onofrio
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS
8270C

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_1
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	3	2.6	Phenol	ND	µg/L	
	2	1.1	Bis(2-chloroethyl) Ether	ND		
	2	0.9	2-Chlorophenol	ND		
	10	1.1	Bis(2-chloroisopropyl) Ether	ND		
	5	0.8	N-Nitroso-di-n-propylamine	ND		
	1	0.8	Hexachloroethane	ND		
	10	1.7	Nitrobenzene	ND		
	2	1.8	Isophorone	ND		
	10	2.3	2-Nitrophenol	ND		
	2	1.0	2,4-Dimethylphenol	ND		
	5	3.3	Bis(2-chloroethoxy)methane	ND		
	3	2.1	2,4-Dichlorophenol	ND		
	5	3.2	4-Chloro-3-methylphenol	ND		
	5	2.6	Hexachlorocyclopentadiene	ND		
	10	1.8	2,4,6-Trichlorophenol	ND		
	10	1.1	2-Chloronaphthalene	ND		
	2	1.0	Dimethyl Phthalate	ND		
	10	1.0	Acenaphthylene	ND		
	1	0.7	Acenaphthene	ND		
	5	3.2	2,4-Dinitrophenol	ND		
	10	4.1	4-Nitrophenol	ND		
	5	3.0	2,4-Dinitrotoluene	ND		
	5	1.4	2,6-Dinitrotoluene	ND		
	2	0.6	Diethylphthalate	ND		
	5	0.8	4-Chloro-phenylphenylether	ND		
	10	0.9	Fluorene	ND		
	10	7.5	4,6-Dinitro-2-methylphenol	ND		
	1	0.9	N-Nitrosodiphenylamine	ND		
	10	1.0	4-Bromophenyl-phenylether	ND		
	1	0.7	Hexachlorobenzene	ND		
	8	7.3	Pentachlorophenol	ND		
	5	0.4	Phenanthrene	ND		
	10	1.2	Anthracene	ND		

Report # N161-12

CERTIFICATE OF ANALYSIS
8270C

Sample ID: Outfall R_1
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	10	0.3	Di-n-butylphthalate	ND	µg/L	
	10	0.6	Fluoranthene	ND		
	10	1.3	Pyrene	ND		
	10	1.6	Butylbenzylphthalate	ND		
	5	2.2	3,3'-Dichlorobenzidine	ND		
	10	1.4	Benzo(a)anthracene	ND		
	5	0.8	Bis(2-ethylhexyl)phthalate	ND		
	5	1.1	Chrysene	ND		
	10	1.3	Di-n-octylphthalate	ND		
	3	2.5	Benzo(k)fluoranthene	ND		
	2	0.9	Benzo(a)pyrene	ND		
	6	5.8	Indeno(1,2,3-c,d)pyrene	ND		
	2	1.3	Dibenzo(a,h)anthracene	ND		
	5	1.0	Benzo(g,h,i)perylene	ND		
	1	1.0	1,2-Diphenyl hydrazine	ND		
	5	2.5	Benzidine	ND		
	5	2.1	N-Nitrodimethylamine	ND		
	5	2.5	1,2-Benzanthracene	ND		
	5	2.5	Di(2-ethylhexyl) adipate	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
Nitrobenzene-d_5	100	62.06	62.06	35-114
2-Fluorobiphenyl	100	79.54	79.54	43-141
Terphenyl-d_{14}	100	121.60	121.60	33-141
2-fluorophenyl	150	67.69	45.13	21-100
Phenol-d_5	150	43.54	29.03	10-94
2,4,6-Tbromophenol	150	133.11	88.74	10-123

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8081A

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Sample ID: Outfall R_1
Lab ID: N305692

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8081A	0.10	0.09	Alpha-BHC	ND	µg/L	
	0.20	0.11	Gamma-BHC	ND		
	0.20	0.11	Heptachlor	ND		
	0.10	0.08	Beta-BHC	ND		
	0.20	0.13	Delta-BHC	ND		
	0.10	0.09	Aldrin	ND		
	0.10	0.10	Heptachlor Epoxide	ND		
	0.10	0.09	Endosulfan 1	ND		
	0.10	0.08	DDE	ND		
	0.10	0.07	Dieldrin	ND		
	0.20	0.09	Endrin	ND		
	0.10	0.13	DDD	ND		
	0.10	0.05	Endosulfan 2	ND		
	0.10	0.08	DDT	ND		
	0.10	0.07	Endrin Aldehyde	ND		
	0.30	0.22	Endosulfan Sulfate	ND		
	10	0.31	Methoxychlor	ND		
	0.50	0.50	Toxaphene	ND		
	0.50	0.50	Chlordane	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
TCMX	0.25	0.21	84.0	63.2-121
DBC	0.50	0.42	84.0	68.2-135

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8082

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/15/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_1
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flags
8082	0.5	0.05	Arochlor 1016	ND	µg/L	
	0.5	0.14	Arochlor 1221	ND		
	0.5	0.09	Arochlor 1232	ND		
	0.5	0.06	Arochlor 1242	ND		
	0.5	0.15	Arochlor 1248	ND		
	0.5	0.06	Arochlor 1254	ND		
	0.5	0.22	Arochlor 1260	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS
504.1

Report # N161-12

Date: 6/12/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/12/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_1
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flags
504.1	0.01	0.005	(DBCP)1,2-Dibromo-3-Chloroprop	ND	µg/L	
	0.02	0.012	(EDB) Ethylene dibromide	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

507

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_1
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flags
507	1	0.06	Atrazine (AATREX)	ND	µg/L	
	2	0.11	Molinate (ORDRAM)	ND		
	4	0.15	Simazine (PRINCEP)	ND		
	1	0.66	Alachlor	ND		
	0.25	0.05	Diazinon	ND		
	1	0.01	Chlorpyrifos	ND		
	0.38	1.42	Butachlor	ND		
	0.25	0.05	Diazinon	ND		
	10.0	0.13	Dimethoate (CYGON)	ND		
	10.0	0.20	Metolachlor	ND		
	2.0	0.18	Prometryn (CAPAROL)	ND		
	0.5	0.44	Propachlor	ND		
	1.0	0.17	Metribuzin	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Vernolate	5.00	4.56	91.2	70-130

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

515.1

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Sample ID: Outfall R_1
Lab ID: N305692

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
515.1	2	0.46	Bentazon (BASAGRAN)	ND	µg/L	
	10	0.97	2,4-D	ND		
	1	0.51	2,4,5-TP (Silvex)	ND		
	10	0.08	Dalapon	ND		
	2	0.27	Dinoseb (DNBP)	ND		
	1	0.19	Picloram	ND		
	1.5	0.01	Dicamba (BANVEL)	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
DCAA	5.00	5.12	102.4	68-120

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/25/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/19/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R,
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flag
6010B	50	18	Aluminum	340	µg/L	
7041	5	3	Antimony	ND	µg/L	
6010B	100	13	Barium	58	µg/L	DNQ
7091	1	0.8	Beryllium	ND	µg/L	
7131A	0.25	0.16	Cadmium	ND	µg/L	
7191	2	1.5	Chromium	ND	µg/L	
7199	5	0.2	Chromium VI	0.5	µg/L	DNQ
6010B	100	16	Iron	200	µg/L	
7421	0.5	0.3	Lead	ND	µg/L	
6010B	20	9.8	Manganese	ND	µg/L	
7740	5	3.2	Selenium	ND	µg/L	
6010B	1	0.1	Silver	ND	µg/L	
7841	1	0.9	Thallium	ND	µg/L	
6010B	10	2	Zinc	3	µg/L	DNQ

Rohit Bombaywala
Supervisor

Certification # 1157

Donna Keller
Laboratory Director

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305692-Outfall R1 Received: 6/11/02 Collected: 6/10/02 9:00
Lab ID: 0206256-01A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Methomyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fenuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Monuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propoxur	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbofuran	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbaryl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fluometuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Diuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propham	ND		10	µg/L	1.0	6/12/02	6/19/02
Siduron	ND		10	µg/L	1.0	6/12/02	6/19/02
Methiocarb	ND		10	µg/L	1.0	6/12/02	6/19/02
Linuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Swep	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Chlorpropham	ND		10	µg/L	1.0	6/12/02	6/19/02
Barbane	ND		10	µg/L	1.0	6/12/02	6/19/02
Neburon	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Surrogate: Simazine	86.8		57.8-109	% Rec	1.0	6/12/02	6/19/02

Client Sample ID: N305692-Outfall R1 Received: 6/11/02 Collected: 6/10/02 9:00
Lab ID: 0206256-01B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND		5.0	µg/L	1.0		6/19/02

Client Sample ID: N305692-Outfall R1 Received: 6/11/02 Collected: 6/10/02 9:00
Lab ID: 0206256-01C

Test Name: Endothall Reference: EPA 548.1

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Endothall	ND		45	µg/L	1.0	6/13/02	6/16/02
Surrogate: 2,3-D	64.4	S	73.2-115	% Rec	1.0	6/13/02	6/16/02

NORTH COAST LABORATORIES
5680 West End Road · Arcata, California 95521 · 707.822.4649 · FAX 707.822.6831

GEOANALYTICAL LABORATORIES INC

Client Sample ID: N305692-OUTFALL R1

Trace Level Organic Compounds

Lot-Sample #...: G2F110270-001 Work Order #...: E2T4F1AC Matrix.....: WATER
Date Sampled...: 06/10/02 Date Received..: 06/11/02
Prep Date.....: 06/19/02 Analysis Date..: 06/27/02
Prep Batch #...: 2170532

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.60	pg/L	SW846 8290
1,2,3,7,8-PeCDD	ND	1.3	pg/L	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.79	pg/L	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.87	pg/L	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.75	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	2.0	pg/L	SW846 8290
OCDD	ND	13	pg/L	SW846 8290
2,3,7,8-TCDF	ND	0.99	pg/L	SW846 8290
1,2,3,7,8-PeCDF	ND	0.84	pg/L	SW846 8290
2,3,4,7,8-PeCDF	ND	0.82	pg/L	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.98	pg/L	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.0	pg/L	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.0	pg/L	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.1	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.84	pg/L	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.45	pg/L	SW846 8290
OCDF	ND	1.2	pg/L	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	88	(40 - 135)
13C-1,2,3,7,8-PeCDD	82	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	87	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	87	(40 - 135)
13C-OCDD	91	(40 - 135)
13C-2,3,7,8-TCDF	79	(40 - 135)
13C-1,2,3,7,8-PeCDF	79	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	71	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	81	(40 - 135)

BASIC LABORATORY, INC.

WATER CODE SECTION 13267 (CTR) - METALS

Report To: GEO ANALYTICAL LABORATORIES
1405 KANSAS AVENUE SUITE A
MODESTO CA 95351

Attention: SHANNON INGRAM

Lab Number: 0206336-1
Date: 06/21/02
Phone: 209-572-0900
Date/Time Sampled: 06/10/02/0900
Date Received: 06/11/02
P.O. #:
Page 1 of 4 - Metals

Description: N305692 - OUTFALL -R1

CTR No.	Method	Test	Units	Results	Qualifier	CQL	MDL	RL	Date Analyzed
8	1631	Mercury	ng/l	0.47	DNQ - Est. Conc.	0.5	0.20	0.50	06/20/02

Comments: California D.O.H.S. Cert. #1677.
ND - Not detected. RL - Minimum Level of Quantitation.
MDL- Method Detection Limit. DNQ Est. Conc. - Detected, but not Quantified.
ng/l - Nanogram/liter. ug/l - Microgram/liter. CQL - Criterion Quantitation Limit.

Reported by: Bernice Kidd

E.S BABCOCK & SONS, INC.
Established 1906

NELAP #02101CA ELAP#1156
6100 Quail Valley Court Riverside, CA 92507-0704
P.O. Box 432 Riverside, CA 92502-0432
PH (909) 653-3351 FAX (909) 653-1662
e-mail: esbsales@aol.com
www.babcocklabs.com

Client Name: GeoAnalytical Laboratory
Contact: Shannon Ingram
Address: 1405 Kansas Ave. Ste. A
Modesto CA, 95351

Work Order No: A2F0502
Project Name: No Project
Project Number: No Project
Report Date: 03-Jul-2002

Laboratory Reference Number
A2F0502-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
N305692 - Outfall R1	Liquid	06/10/02 09:00	06/11/02 8:05

Analyte(s)	Result	*RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series								
Arsenic	1.3	1.0	0.73	ug/L	EPA 6020	06/27/02 17:25	dma	
Copper	2.5	0.50	0.072	ug/L	EPA 6020	06/27/02 17:25	dma	
Nickel	2.3	5.0	0.17	ug/L	EPA 6020	06/27/02 17:25	dma	J

*Reportable Detection Limit

EDITED IN ACCORDANCE

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/17/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/10/02
Date Completed: 6/14/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R_1
Lab ID: N305692

Method	RL	MDL	Analyte	Results	Units	Flag
335.2	5	5	Cyanide	ND	µg/L	
7199	5	0.2	Chromium VI	0.5	µg/L	DNQ
350.2	500	500	Ammonia as N	ND	µg/L	
300.0	1000	100	Chloride	14000	µg/L	
200.7	1000	1000	Hardness as $CaCO_3$	98100	µg/L	
425.1	50	28	MBAS	ND	µg/L	
300.0	2000	280	Nitrate as N	6100	µg/L	
300.0	400	380	Nitrite as N	ND	µg/L	
150.1	NA	NA	pH	7.8	Std.Units	
365.2	10	10	Total Phosphorous	ND	µg/L	
120.1	1.0	0.76	Electro Conductivity (EC)	324	µmhos/cm	
300.0	500	260	Sulfate	13000	µg/L	
376.1	1000	890	Sulfide as S	ND	µg/L	
377.1	2000	2000	Sulfite as SO_3	ND	µg/L	
160.1	10000	10000	TDS(Filterable Residue)	290000	µg/L	

Rohit Bombaywala

Certification # 1157

Donna Keller
Laboratory Director

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305692-Outfall R1 Received: 6/11/02 Collected: 6/10/02 9:00
Lab ID: 0206256-01D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Diquat	ND		0.40	µg/L	1.0	6/12/02	6/17/02

Client Sample ID: N305693-Outfall R2 Received: 6/11/02 Collected: 6/10/02 9:30
Lab ID: 0206256-02A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Methomyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fenuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Monuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propoxur	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbofuran	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbaryl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fluometuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Diuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propham	ND		10	µg/L	1.0	6/12/02	6/19/02
Siduron	ND		10	µg/L	1.0	6/12/02	6/19/02
Methiocarb	ND		10	µg/L	1.0	6/12/02	6/19/02
Linuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Swep	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Chlorpropham	ND		10	µg/L	1.0	6/12/02	6/19/02
Barbane	ND		10	µg/L	1.0	6/12/02	6/19/02
Neburon	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Surrogate: Simazine	95.3		57.8-109	% Rec	1.0	6/12/02	6/19/02

Test Name: Endothall Reference: EPA 548.1

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Endothall	< 45	J	45	µg/L	1.0	6/13/02	6/16/02
Surrogate: 2,3-D	68.4	S	73.2-115	% Rec	1.0	6/13/02	6/16/02

NORTH COAST LABORATORIES
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EMSL

Tuesday, June 25, 2002

GeoAnalytical Laboratories, Inc.
1405 Kansas Ave.
Suite A
Modesto, CA 95351

Project: N161-12
Attention: Shannon Ingram
Ref Number: CA022583
Date Sampled 06-10-02
Date Filtered 06-11-02
Date Analyzed 06-24-02

Asbestos Analysis in Water by Transmission Electron Microscopy (TEM) Performed by Method EPA/600/R-94/134 - (100.2) "Determination of Asbestos Structures Over 10μm In Length in Drinking Water"; by Brackett, Clark & Millette

SAMPLE ID	#ASBESTOS STRUCTURES >10μm	#NON-ASBESTOS FIBROUS STRUCTURES	TYPE(S) OF ASBESTOS	CONCENTRATION OF ASBESTOS Fibers (MILLIONS/LITER) >10μm	95% Confidence Limits (Lower-Upper) (MILLIONS/LITERS) >10 μm	DETECTION LIMIT (MFL)
N305692- outfall R1**	0	0	None Detected	<0.20	0-0.73	0.20
N305693- outfall R2**	0	0	None Detected	<0.20	0-0.73	0.20
N305694- outfall R3**	0	0	None Detected	<0.27	0-0.73	0.27
N305695- outfall R4**	0	0	None Detected	<0.55	0-0.73	0.55
EMSL Blank	0	0	None Detected	<0.20	0-0.73	0.20

*Samples that contain high levels of particulate which require the laboratory to filter a dilution less than the minimum recommended method volume of 50 ml, will necessarily have higher detection limits. Refer to EPA/600/R-94/134 Method 100.2, Sections 11.10 and 13.6.

EPA Limit = 7 million fibers per liter for fibers greater than 10 microns in length.
California Title 22 Limit = 7 million fibers per liter for fibers greater than 10 microns in length.

Analyst

Approved Signatory

ACCREDITATIONS: CA STATE ELAP #1620

July 2, 2002

GeoAnalytical Laboratory
Attn: Shannon Ingram
1405 Kansas Ave., Suite A.
Modesto, CA 95351

Dear Ms. Ingram:

Re: ESB Lab Reference Numbers A2F0502-02, A2F0502-03, and A2F0502-04.

This letter is in regard to the water samples submitted for tributyl tin analyses.

No results are available for the requested tributyl tin analyses because the batch acceptance criteria were not met. A review of the batch indicates that both the method blank and duplicate were outside the laboratory acceptance criteria. There was not sufficient sample for re-analysis.

Please feel free to contact me if there are any questions.

Sincerely,

Sylvia H. Pastor
QA Manager

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/13/02
Date Completed: 6/13/02

Sample ID: Outfall R_2
Lab ID: N305693

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	20	17	Acrolein	ND	µg/L	
	2	0.32	Acrylonitrile	ND		
	0.5	0.12	Benzene	ND		
	0.5	0.20	Carbon tetrachloride	ND		
	2	0.16	Chlorobenzene	ND		
	5	0.17	1,2,4-trichlorobenzene	ND		
	1	0.14	1,1-dichloroethane	ND		
	0.5	0.40	1,2-dichloroethane	ND		
	2	0.14	1,1,1-trichloroethane	ND		
	0.5	0.10	1,1,2-trichloroethane	ND		
	0.5	0.11	1,1,2,2-tetrachloroethane	ND		
	2	0.26	Chloroethane	ND		
	0.5	0.12	Chloroform	0.72		
	2	0.13	1,2-dichlorobenzene	ND		
	2	0.11	1,3-dichlorobenzene	ND		
	2	0.11	1,4-dichlorobenzene	ND		
	0.5	0.14	1,1-dichloroethene	ND		
	1	0.17	trans-1,2-dichloroethene	ND		
	0.5	0.13	1,2-dichloropropane	ND		
	0.5	0.19	1,3-dichloropropene	ND		
	2	0.15	Ethylbenzene	ND		
	2.0	0.37	Chloromethane	ND		
	2	0.91	Bromomethane	ND		
	2	0.11	Bromoform	ND		
	0.5	0.14	Dichlorobromomethane	ND		
	0.5	0.13	Dibromochloromethane	ND		
	0.5	0.18	Tetrachloroethene	ND		
	2	0.14	Toluene	ND		
	2	0.17	Trichloroethene	ND		
	0.5	0.14	Vinyl chloride	ND		
	1	0.26	2-Chloroethyl vinyl Ether	ND		
	0.5	0.14	cis-1,2-Dichloroethene	ND		
	2	0.06	Dichloromethane (Methylene chloride)	ND		
	10	0.16	Naphthalene	ND		
	3	0.15	Methyl-tert-butyl ether (MTBE)	ND		
	5	0.20	Trichlorofluoromethane	ND		
	10	0.16	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		
	0.5	0.11	Styrene	ND		
	0.5	0.34	Xylenes,total	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
1,2-Dichloroethane-d_4	5.00	5.61	112.2	72-132
2-Bromo-1-chloropropane	5.00	5.60	112.0	71-134
4-Bromofluorobenzene	5.00	4.85	97.0	74-132

Mario D'Onofrio
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS
8270C

port # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Sample ID: Outfall R_2
Lab ID: N305693

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	3	2.6	Phenol	ND	µg/L	
	2	1.1	Bis(2-chloroethyl) Ether	ND		
	2	0.9	2-Chlorophenol	ND		
	10	1.1	Bis(2-chloroisopropyl) Ether	ND		
	5	0.8	N-Nitroso-di-n-propylamine	ND		
	1	0.8	Hexachloroethane	ND		
	10	1.7	Nitrobenzene	ND		
	2	1.8	Isophorone	ND		
	10	2.3	2-Nitrophenol	ND		
	2	1.0	2,4-Dimethylphenol	ND		
	5	3.3	Bis(2-chloroethoxy)methane	ND		
	3	2.1	2,4-Dichlorophenol	ND		
	5	3.2	4-Chloro-3-methylphenol	ND		
	5	2.6	Hexachlorocyclopentadiene	ND		
	10	1.8	2,4,6-Trichlorophenol	ND		
	10	1.1	2-Chloronaphthalene	ND		
	2	1.0	Dimethyl Phthalate	ND		
	10	1.0	Acenaphthylene	ND		
	1	0.7	Acenaphthene	ND		
	5	3.2	2,4-Dinitrophenol	ND		
	10	4.1	4-Nitrophenol	ND		
	5	3.0	2,4-Dinitrotoluene	ND		
	5	1.4	2,6-Dinitrotoluene	ND		
	2	0.6	Diethylphthalate	ND		
	5	0.8	4-Chloro-phenylphenylether	ND		
	10	0.9	Fluorene	ND		
	10	7.5	4,6-Dinitro-2-methylphenol	ND		
	1	0.9	N-Nitrosodiphenylamine	ND		
	10	1.0	4-Bromophenyl-phenylether	ND		
	1	0.7	Hexachlorobenzene	ND		
	8	7.3	Pentachlorophenol	ND		
	5	0.4	Phenanthrene	ND		
	10	1.2	Anthracene	ND		

Report # N161-12

CERTIFICATE OF ANALYSIS
8270C

Sample ID: Outfall R_2
Lab ID: N305693

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	10	0.3	Di-n-butylphthalate	ND	µg/L	
	10	0.6	Fluoranthene	ND		
	10	1.3	Pyrene	ND		
	10	1.6	Butylbenzylphthalate	ND		
	5	2.2	3,3'-Dichlorobenzidine	ND		
	10	1.4	Benzo(a)anthracene	ND		
	5	0.8	Bis(2-ethylhexyl)phthalate	ND		
	5	1.1	Chrysene	ND		
	10	1.3	Di-n-octylphthalate	ND		
	3	2.5	Benzo(k)fluoranthene	ND		
	2	0.9	Benzo(a)pyrene	ND		
	6	5.8	Indeno(1,2,3-c,d)pyrene	ND		
	2	1.3	Dibenzo(a,h)anthracene	ND		
	5	1.0	Benzo(g,h,i)perylene	ND		
	1	1.0	1,2-Diphenyl hydrazine	ND		
	5	2.5	Benzidine	ND		
	5	2.1	N-Nitrodimethylamine	ND		
	5	2.5	1,2-Benzanthracene	ND		
	5	2.5	Di(2-ethylhexyl) adipate	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
Nitrobenzene-d_5	100	60.10	60.10	35-114
2-Fluorobiphenyl	100	77.16	77.16	43-141
Terphenyl-d_{14}	100	115.05	115.05	33-141
2-fluorophenyl	150	65.58	43.72	21-100
Phenol-d_5	150	42.42	28.28	10-94
2,4,6-Tbromophenol	150	129.91	86.61	10-123

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8081A

Report #: N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_2
Lab ID: N305693

Method	RL	MDL	Analyte	Results	Units	Flags
8081A	0.10	0.09	Alpha-BHC	ND	µg/L	
	0.20	0.11	Gamma-BHC	ND		
	0.20	0.11	Heptachlor	ND		
	0.10	0.08	Beta-BHC	ND		
	0.20	0.13	Delta-BHC	ND		
	0.10	0.09	Aldrin	ND		
	0.10	0.10	Heptachlor Epoxide	ND		
	0.10	0.09	Endosulfan 1	ND		
	0.10	0.08	DDE	ND		
	0.10	0.07	Dieldrin	ND		
	0.20	0.09	Endrin	ND		
	0.10	0.13	DDD	ND		
	0.10	0.05	Endosulfan 2	ND		
	0.10	0.08	DDT	ND		
	0.10	0.07	Endrin Aldehyde	ND		
	0.30	0.22	Endosulfan Sulfate	ND		
	10	0.31	Methoxychlor	ND		
	0.50	0.50	Toxaphene	ND		
	0.50	0.50	Chlordane	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
TCMX	0.25	0.26	104.0	63.2-121
DBC	0.50	0.50	100.0	68.2-135

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8082

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/15/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_2
Lab ID: N305693

Method	RL	MDL	Analyte	Results	Units	Flags
8082	0.5	0.05	Arochlor 1016	ND	µg/L	
	0.5	0.14	Arochlor 1221	ND		
	0.5	0.09	Arochlor 1232	ND		
	0.5	0.06	Arochlor 1242	ND		
	0.5	0.15	Arochlor 1248	ND		
	0.5	0.06	Arochlor 1254	ND		
	0.5	0.22	Arochlor 1260	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

504.1

Report # N161-12

Date: 6/12/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/12/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_2
Lab ID: N305693

Method	RL	MDL	Analyte	Results	Units	Flags
504.1	0.01	0.005	(DBCP)1,2-Dibromo-3-Chloroprop	ND	µg/L	
	0.02	0.012	(EDB) Ethylene dibromide	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

507

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Sample ID: Outfall R_2
Lab ID: N305693

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
507	1	0.06	Atrazine (AATREX)	ND	µg/L	
	2	0.11	Molinate (ORDRAM)	ND		
	4	0.15	Simazine (PRINCEP)	ND		
	1	0.66	Alachlor	ND		
	0.25	0.05	Diazinon	ND		
	1	0.01	Chlorpyrifos	ND		
	0.38	1.42	Butachlor	ND		
	0.25	0.05	Diazinon	ND		
	10.0	0.13	Dimethoate (CYGON)	ND		
	10.0	0.20	Metolachlor	ND		
	2.0	0.18	Prometryn (CAPAROL)	ND		
	0.5	0.44	Propachlor	ND		
	1.0	0.17	Metribuzin	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Vernolate	5.00	4.53	90.6	70-130

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

515.1

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Sample ID: Outfall R_2
Lab ID: N305693

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
515.1	2	0.46	Bentazon (BASAGRAN)	ND	µg/L	
	10	0.97	2,4-D	ND		
	1	0.51	2,4,5-TP (Silvex)	ND		
	10	0.08	Dalapon	ND		
	2	0.27	Dinoseb (DNBP)	ND		
	1	0.19	Picloram	ND		
	1.5	0.01	Dicamba (BANVEL)	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
DCAA	5.00	5.53	110.6	68-120

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/25/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/19/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R_2
Lab ID: N305693

Method	RL	MDL	Analyte	Results	Units	Flag
6010B	50	18	Aluminum	174	µg/L	
7041	5	3	Antimony	ND	µg/L	
6010B	100	13	Barium	56	µg/L	DNQ
7091	1	0.8	Beryllium	ND	µg/L	
7131A	0.25	0.16	Cadmium	ND	µg/L	
7191	2	1.5	Chromium	ND	µg/L	
7199	5	0.2	Chromium VI	0.4	µg/L	DNQ
6010B	100	16	Iron	100	µg/L	
7421	0.5	0.3	Lead	ND	µg/L	
6010B	20	9.8	Manganese	ND	µg/L	
7740	5	3.2	Selenium	ND	µg/L	
6010B	1	0.1	Silver	5	µg/L	
7841	1	0.9	Thallium	ND	µg/L	
6010B	10	2	Zinc	6	µg/L	DNQ

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

GEOANALYTICAL LABORATORIES INC

Client Sample ID: N305693-OUTFALL R2

Trace Level Organic Compounds

Lot-Sample #...: G2F110270-002 Work Order #...: E2T4J1AC Matrix.....: WATER
Date Sampled...: 06/10/02 Date Received..: 06/11/02
Prep Date.....: 06/19/02 Analysis Date..: 06/27/02
Prep Batch #...: 2170532

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.51	pg/L	SW846 8290
1,2,3,7,8-PeCDD	ND	1.3	pg/L	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.85	pg/L	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.93	pg/L	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.80	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	2.0	pg/L	SW846 8290
OCDD	ND	8.7	pg/L	SW846 8290
2,3,7,8-TCDF	ND	0.85	pg/L	SW846 8290
1,2,3,7,8-PeCDF	ND	0.73	pg/L	SW846 8290
2,3,4,7,8-PeCDF	ND	0.71	pg/L	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.99	pg/L	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.0	pg/L	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.0	pg/L	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.1	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.88	pg/L	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.46	pg/L	SW846 8290
OCDF	ND	0.96	pg/L	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	91	(40 - 135)
13C-1,2,3,7,8-PeCDD	84	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	91	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	91	(40 - 135)
13C-OCDD	95	(40 - 135)
13C-2,3,7,8-TCDF	83	(40 - 135)
13C-1,2,3,7,8-PeCDF	83	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	79	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	84	(40 - 135)

BASIC LABORATORY, INC.

WATER CODE SECTION 13267 (CTR) - METALS

Report To: GEO ANALYTICAL LABORATORIES
1405 KANSAS AVENUE SUITE A
MODESTO CA 95351

Attention: SHANNON INGRAM

Lab Number: 0206336-2
Date: 06/21/02
Phone: 209-572-0900
Date/Time Sampled: 06/10/02/0930
Date Received: 06/11/02
P.O. #:
Page 2 of 4 - Metals

Description: N305693 - OUTFALL R2

CTR No.	Method	Test	Units	Results	Qualifier	CQL	MDL	RL	Date Analyzed
8	1631	Mercury	ng/l	1.87		0.5	0.20	0.50	06/20/02

Comments: California D.O.H.S. Cert. #1677.
ND - Not detected. RL - Minimum Level of Quantitation.
MDL- Method Detection Limit. DNQ Est. Conc. - Detected, but not Quantified.
ng/l - Nanogram/liter. ug/l - Microgram/liter. CQL - Criterion Quantitation Limit.

Reported by: Bernice Kidd

E.S BABCOCK & SONS, INC.
Established 1906

NELAP #02101CA . ELAP#1156
6100 Quail Valley Court Riverside, CA 92507-0704
P.O. Box 432 Riverside, CA 92502-0432
PH (909) 653-3351 FAX (909) 653-1662
e-mail: esbsales@aol.com
www.babcocklabs.com

Client Name: GeoAnalytical Laboratory
Contact: Shannon Ingram
Address: 1405 Kansas Ave. Ste. A
Modesto CA, 95351

Work Order No: A2F0502
Project Name: No Project
Project Number: No Project
Report Date: 03-Jul-2002

Laboratory Reference Number
A2F0502-02

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
N305693 - Outfall R2	Liquid	06/10/02 09:30	06/11/02 8:05

Analyte(s)	Result	*RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series								
Arsenic	2.2	1.0	0.73	ug/L	EPA 6020	06/27/02 17:28	dma	
Copper	2.8	0.50	0.072	ug/L	EPA 6020	06/27/02 17:28	dma	
Nickel	2.0	5.0	0.17	ug/L	EPA 6020	06/27/02 17:28	dma	J

*Reportable Detection Limit

ACCREDITED IN ACCORDANCE WI

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/17/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/10/02
Date Completed: 6/14/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R_2
Lab ID: N305693

Method	RL	MDL	Analyte	Results	Units	Flag
335.2	5	5	Cyanide	ND	µg/L	
7199	5	0.2	Chromium VI	0.4	µg/L	DNQ
350.2	500	500	Ammonia as N	ND	µg/L	
300.0	1000	100	Chloride	23000	µg/L	
200.7	1000	1000	Hardness as $CaCO_3$	102000	µg/L	
425.1	50	28	MBAS	ND	µg/L	
300.0	2000	280	Nitrate as N	6700	µg/L	
300.0	400	380	Nitrite as N	ND	µg/L	
150.1	NA	NA	pH	7.7	Std.Units	
365.2	10	10	Total Phosphorous	173	µg/L	
120.1	1.0	0.76	Electro Conductivity (EC)	405	µmhos/cm	
300.0	500	260	Sulfate	19000	µg/L	
376.1	1000	890	Sulfide as S	ND	µg/L	
377.1	2000	2000	Sulfite as SO_3	ND	µg/L	
160.1	10000	10000	TDS(Filterable Residue)	326000	µg/L	

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305692-Outfall R1 Received: 6/11/02 Collected: 6/10/02 9:00
Lab ID: 0206256-01D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Diquat	ND		0.40	µg/L	1.0	6/12/02	6/17/02

Client Sample ID: N305693-Outfall R2 Received: 6/11/02 Collected: 6/10/02 9:30
Lab ID: 0206256-02A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Methomyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fenuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Monuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propoxur	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbofuran	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbaryl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fluometuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Diuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propham	ND		10	µg/L	1.0	6/12/02	6/19/02
Siduron	ND		10	µg/L	1.0	6/12/02	6/19/02
Methiocarb	ND		10	µg/L	1.0	6/12/02	6/19/02
Linuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Swep	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Chlorpropham	ND		10	µg/L	1.0	6/12/02	6/19/02
Barbane	ND		10	µg/L	1.0	6/12/02	6/19/02
Neburon	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Surrogate: Simazine	95.3		57.8-109	% Rec	1.0	6/12/02	6/19/02

Test Name: Endothall Reference: EPA 548.1

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Endothall	< 45	J	45	µg/L	1.0	6/13/02	6/16/02
Surrogate: 2,3-D	68.4	S	73.2-115	% Rec	1.0	6/13/02	6/16/02

NORTH COAST LABORATORIES
5680 West End Road • Arcata California 95521 • 707 822 4649 FAX 707

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305693-Outfall R2 Received: 6/11/02 Collected: 6/10/02 9:30
Lab ID: 0206256-02B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND		5.0	µg/L	1.0		6/18/02

Client Sample ID: N305693-Outfall R2 Received: 6/11/02 Collected: 6/10/02 9:30
Lab ID: 0206256-02D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Diquat	ND		0.40	µg/L	1.0	6/12/02	6/17/02

Client Sample ID: N305694-Outfall R3 Received: 6/11/02 Collected: 6/10/02 10:00
Lab ID: 0206256-03A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Methomyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fenuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Monuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propoxur	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbofuran	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbaryl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fluometuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Diuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propham	ND		10	µg/L	1.0	6/12/02	6/19/02
Siduron	ND		10	µg/L	1.0	6/12/02	6/19/02
Methiocarb	ND		10	µg/L	1.0	6/12/02	6/19/02
Linuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Swep	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Chlorpropham	ND		10	µg/L	1.0	6/12/02	6/19/02
Barbane	ND		10	µg/L	1.0	6/12/02	6/19/02
Neburon	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Surrogate: Simazine	79.7		57.8-109	% Rec	1.0	6/12/02	6/19/02

Westmont, NJ (856) 858-1260 | Piscataway, NJ (908) 981-0550 | Carle Place, NY (516) 997-7251 | Smyrna, GA (404) 333-6066 | Melbourne, FL (407) 253-4224 | Ann Arbor, MI (313) 668-6810 | Milpitas, CA (408) 934-7010

Tuesday, June 25, 2002

GeoAnalytical Laboratories, Inc.
1405 Kansas Ave.
Suite A
Modesto, CA 95351

Project: N161-12
Attention: Shannon Ingram
Ref Number: CA022583
Date Sampled 06-10-02
Date Filtered 06-11-02
Date Analyzed 06-24-02

Asbestos Analysis in Water by Transmission Electron Microscopy (TEM) Performed by Method EPA/600/R-94/134 - (100.2) "Determination of Asbestos Structures Over 10μm In Length in Drinking Water"; by Brackett, Clark & Millette

SAMPLE ID	#ASBESTOS STRUCTURES >10μm	#NON-ASBESTOS FIBROUS STRUCTURES	TYPE(S) OF ASBESTOS	CONCENTRATION OF ASBESTOS Fibers (MILLIONS/LITER) >10μm	95% Confidence Limits (Lower-Upper) (MILLIONS/LITERS) >10 μm	DETECTION LIMIT (MFL)
N305692- outfall R1**	0	0	None Detected	<0.20	0-0.73	0.20
N305693- outfall R2**	0	0	None Detected	<0.20	0-0.73	0.20
N305694- outfall R3**	0	0	None Detected	<0.27	0-0.73	0.27
N305695- outfall R4**	0	0	None Detected	<0.55	0-0.73	0.55
EMSL Blank	0	0	None Detected	<0.20	0-0.73	0.20

**Samples that contain high levels of particulate which require the laboratory to filter a dilution less than the minimum recommended method volume of 50 ml, will necessarily have higher detection limits. Refer to EPA/600/R-94/134 Method 100.2, Sections 11.10 and 13.6.

EPA Limit = 7 million fibers per liter for fibers greater than 10 microns in length.
California Title 22 Limit = 7 million fibers per liter for fibers greater than 10 microns in length.

Analyst

Approved Signatory

ACCREDITATIONS: CA STATE ELAP #1620

July 2, 2002

GeoAnalytical Laboratory
Attn: Shannon Ingram
1405 Kansas Ave., Suite A.
Modesto, CA 95351

Dear Ms. Ingram:

Re: ESB Lab Reference Numbers A2F0502-02, A2F0502-03, and A2F0502-04.

This letter is in regard to the water samples submitted for tributyl tin analyses.

No results are available for the requested tributyl tin analyses because the batch acceptance criteria were not met. A review of the batch indicates that both the method blank and duplicate were outside the laboratory acceptance criteria. There was not sufficient sample for re-analysis.

Please feel free to contact me if there are any questions.

Sincerely,

Sylvia H. Pastor
QA Manager

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/13/02
Date Completed: 6/13/02

Sample ID: Outfall R_3
Lab ID: N305694

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	20	.17	Acrolein	ND	µg/L	
	2	0.32	Acrylonitrile	ND		
	0.5	0.12	Benzene	ND		
	0.5	0.20	Carbon tetrachloride	ND		
	2	0.16	Chlorobenzene	ND		
	5	0.17	1,2,4-trichlorobenzene	ND		
	1	0.14	1,1-dichloroethane	ND		
	0.5	0.40	1,2-dichloroethane	ND		
	2	0.14	1,1,1-trichloroethane	ND		
	0.5	0.10	1,1,2-trichloroethane	ND		
	0.5	0.11	1,1,2,2-tetrachloroethane	ND		
	2	0.26	Chloroethane	ND		
	0.5	0.12	Chloroform	ND		
	2	0.13	1,2-dichlorobenzene	ND		
	2	0.11	1,3-dichlorobenzene	ND		
	2	0.11	1,4-dichlorobenzene	ND		
	0.5	0.14	1,1-dichloroethene	ND		
	1	0.17	trans-1,2-dichloroethene	ND		
	0.5	0.13	1,2-dichloropropane	ND		
	0.5	0.19	1,3-dichloropropene	ND		
	2	0.15	Ethylbenzene	ND		
	2.0	0.37	Chloromethane	ND		
	2	0.91	Bromomethane	ND		
	2	0.11	Bromoform	ND		
	0.5	0.14	Dichlorobromomethane	ND		
	0.5	0.13	Dibromochloromethane	ND		
	0.5	0.18	Tetrachloroethene	ND		
	2	0.14	Toluene	ND		
	2	0.17	Trichloroethene	ND		
	0.5	0.14	Vinyl chloride	ND		
	1	0.26	2-Chloroethyl vinyl Ether	ND		
	0.5	0.14	cis-1,2-Dichloroethene	ND		
	2	0.06	Dichloromethane (Methylene chloride)	ND		
	10	0.16	Naphthalene	ND		
	3	0.15	Methyl-tert-butyl ether (MTBE)	ND		
	5	0.20	Trichlorofluoromethane	ND		
	10	0.16	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		
	0.5	0.11	Styrene	ND		
	0.5	0.34	Xylenes,total	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
1,2-Dichloroethane-d_4	5.00	5.52	110.4	72-132
2-Bromo-1-chloropropane	5.00	5.49	109.8	71-134
4-Bromofluorobenzene	5.00	4.84	96.8	74-132

Mario D'Onofrio
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS
8270C

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Sample ID: Outfall R_3
Lab ID: N305694

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	3	2.6	Phenol	ND	µg/L	
	2	1.1	Bis(2-chloroethyl) Ether	ND		
	2	0.9	2-Chlorophenol	ND		
	10	1.1	Bis(2-chloroisopropyl) Ether	ND		
	5	0.8	N-Nitroso-di-n-propylamine	ND		
	1	0.8	Hexachloroethane	ND		
	10	1.7	Nitrobenzene	ND		
	2	1.8	Isophorone	ND		
	10	2.3	2-Nitrophenol	ND		
	2	1.0	2,4-Dimethylphenol	ND		
	5	3.3	Bis(2-chloroethoxy)methane	ND		
	3	2.1	2,4-Dichlorophenol	ND		
	5	3.2	4-Chloro-3-methylphenol	ND		
	5	2.6	Hexachlorocyclopentadiene	ND		
	10	1.8	2,4,6-Trichlorophenol	ND		
	10	1.1	2-Chloronaphthalene	ND		
	2	1.0	Dimethyl Phthalate	ND		
	10	1.0	Acenaphthylene	ND		
	1	0.7	Acenaphthene	ND		
	5	3.2	2,4-Dinitrophenol	ND		
	10	4.1	4-Nitrophenol	ND		
	5	3.0	2,4-Dinitrotoluene	ND		
	5	1.4	2,6-Dinitrotoluene	ND		
	2	0.6	Diethylphthalate	ND		
	5	0.8	4-Chloro-phenylphenylether	ND		
	10	0.9	Fluorene	ND		
	10	7.5	4,6-Dinitro-2-methylphenol	ND		
	1	0.9	N-Nitrosodiphenylamine	ND		
	10	1.0	4-Bromophenyl-phenylether	ND		
	1	0.7	Hexachlorobenzene	ND		
	8	7.3	Pentachlorophenol	ND		
	5	0.4	Phenanthrene	ND		
	10	1.2	Anthracene	ND		

Report # N161-12

CERTIFICATE OF ANALYSIS
8270C

Sample ID: Outfall R_3
Lab ID: N305694

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	10	0.3	Di-n-butylphthalate	ND	µg/L	
	10	0.6	Fluoranthene	ND		
	10	1.3	Pyrene	ND		
	10	1.6	Butylbenzylphthalate	ND		
	5	2.2	3,3'-Dichlorobenzidine	ND		
	10	1.4	Benzo(a)anthracene	ND		
	5	0.8	Bis(2-ethylhexyl)phthalate	ND		
	5	1.1	Chrysene	ND		
	10	1.3	Di-n-octylphthalate	ND		
	3	2.5	Benzo(k)fluoranthene	ND		
	2	0.9	Benzo(a)pyrene	ND		
	6	5.8	Indeno(1,2,3-c,d)pyrene	ND		
	2	1.3	Dibenzo(a,h)anthracene	ND		
	5	1.0	Benzo(g,h,i)perylene	ND		
	1	1.0	1,2-Diphenyl hydrazine	ND		
	5	2.5	Benzidine	ND		
	5	2.1	N-Nitrodimethylamine	ND		
	5	2.5	1,2-Benzanthracene	ND		
	5	2.5	Di(2-ethylhexyl) adipate	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
Nitrobenzene-d_5	100	59.39	59.39	35-114
2-Fluorobiphenyl	100	78.08	78.08	43-141
Terphenyl-d_{14}	100	105.16	105.16	33-141
2-fluorophenyl	150	71.62	47.75	21-100
Phenol-d_5	150	46.65	31.10	10-94
2,4,6-Tbromophenol	150	128.59	85.73	10-123

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8081A

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Sample ID: Outfall R_3
Lab ID: N305694

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8081A	0.10	0.09	Alpha-BHC	ND	µg/L	
	0.20	0.11	Gamma-BHC	ND		
	0.20	0.11	Heptachlor	ND		
	0.10	0.08	Beta-BHC	ND		
	0.20	0.13	Delta-BHC	ND		
	0.10	0.09	Aldrin	ND		
	0.10	0.10	Heptachlor Epoxide	ND		
	0.10	0.09	Endosulfan 1	ND		
	0.10	0.08	DDE	ND		
	0.10	0.07	Dieldrin	ND		
	0.20	0.09	Endrin	ND		
	0.10	0.13	DDD	ND		
	0.10	0.05	Endosulfan 2	ND		
	0.10	0.08	DDT	ND		
	0.10	0.07	Endrin Aldehyde	ND		
	0.30	0.22	Endosulfan Sulfate	ND		
	10	0.31	Methoxychlor	ND		
	0.50	0.50	Toxaphene	ND		
	0.50	0.50	Chlordane	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
TCMX	0.25	0.23	92.0	63.2-121
DBC	0.50	0.44	88.0	68.2-135

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8082

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/15/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_3
Lab ID: N305694

Method	RL	MDL	Analyte	Results	Units	Flags
8082	0.5	0.05	Arochlor 1016	ND	µg/L	
	0.5	0.14	Arochlor 1221	ND		
	0.5	0.09	Arochlor 1232	ND		
	0.5	0.06	Arochlor 1242	ND		
	0.5	0.15	Arochlor 1248	ND		
	0.5	0.06	Arochlor 1254	ND		
	0.5	0.22	Arochlor 1260	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

504.1

Report # N161-12

Date: 6/12/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/12/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_3
Lab ID: N305694

Method	RL	MDL	Analyte	Results	Units	Flags
504.1	0.01	0.005	(DBCP)1,2-Dibromo-3-Chloroprop	ND	µg/L	
	0.02	0.012	(EDB) Ethylene dibromide	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

507

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Sample ID: Outfall R_3
Lab ID: N305694

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
507	1	0.06	Atrazine (AATREX)	ND	µg/L	
	2	0.11	Molinate (ORDRAM)	ND		
	4	0.15	Simazine (PRINCEP)	ND		
	1	0.66	Alachlor	ND		
	0.25	0.05	Diazinon	ND		
	1	0.01	Chlorpyrifos	ND		
	0.38	1.42	Butachlor	ND		
	0.25	0.05	Diazinon	ND		
	10.0	0.13	Dimethoate (CYGON)	ND		
	10.0	0.20	Metolachlor	ND		
	2.0	0.18	Prometryn (CAPAROL)	ND		
	0.5	0.44	Propachlor	ND		
	1.0	0.17	Metribuzin	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Vernolate	5.00	4.71	94.2	70-130

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

515.1

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Sample ID: Outfall R_3
Lab ID: N305694

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
515.1	2	0.46	Bentazon (BASAGRAN)	ND	µg/L	
	10	0.97	2,4-D	ND		
	1	0.51	2,4,5-TP (Silvex)	ND		
	10	0.08	Dalapon	ND		
	2	0.27	Dinoseb (DNBP)	ND		
	1	0.19	Picloram	ND		
	1.5	0.01	Dicamba (BANVEL)	ND		
				ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
DCAA	5.00	5.31	106.2	68-120

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/25/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/19/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R_3
Lab ID: N305694

Method	RL	MDL	Analyte	Results	Units	Flag
6010B	50	18	Aluminum	425	µg/L	
7041	5	3	Antimony	134	µg/L	
6010B	100	13	Barium	57	µg/L	DNQ
7091	1	0.8	Beryllium	ND	µg/L	
7131A	0.25	0.16	Cadmium	ND	µg/L	
7191	2	1.5	Chromium	ND	µg/L	
7199	5	0.2	Chromium VI	0.8	µg/L	DNQ
6010B	100	16	Iron	303	µg/L	
7421	0.5	0.3	Lead	ND	µg/L	
6010B	20	9.8	Manganese	28	µg/L	
7740	5	3.2	Selenium	ND	µg/L	
6010B	1	0.1	Silver	ND	µg/L	
7841	1	0.9	Thallium	ND	µg/L	
6010B	10	2	Zinc	2	µg/L	DNQ

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305694-Outfall R3 Received: 6/11/02 Collected: 6/10/02 10:00
Lab ID: 0206256-03B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND		5.0	µg/L	1.0		6/18/02

Client Sample ID: N305694-Outfall R3 Received: 6/11/02 Collected: 6/10/02 10:00
Lab ID: 0206256-03C

Test Name: Endothall Reference: EPA 548.1

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Endothall	< 45	J	45	µg/L	1.0	6/13/02	6/16/02
Surrogate: 2,3-D	67.0	S	73.2-115	% Rec	1.0	6/13/02	6/16/02

Client Sample ID: N305694-Outfall R3 Received: 6/11/02 Collected: 6/10/02 10:00
Lab ID: 0206256-03D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Diquat	ND		0.40	µg/L	1.0	6/12/02	6/17/02

NORTH COAST LABORATORIES
5680 West End Road • Arcata California 95521 • 707-822-4649 • FAX 707-822-6831

GEOANALYTICAL LABORATORIES INC

Client Sample ID: N305694-OUTFALL R3

Trace Level Organic Compounds

Lot-Sample #....: G2F110270-003 Work Order #....: E2T4L1AC Matrix.....: WATER
Date Sampled...: 06/10/02 Date Received..: 06/11/02
Prep Date.....: 06/19/02 Analysis Date..: 06/27/02
Prep Batch #...: 2170532

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.55	pg/L	SW846 8290
1,2,3,7,8-PeCDD	ND	1.2	pg/L	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.68	pg/L	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.75	pg/L	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.65	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.95	pg/L	SW846 8290
OCDD	ND	6.4	pg/L	SW846 8290
2,3,7,8-TCDF	ND	0.75	pg/L	SW846 8290
1,2,3,7,8-PeCDF	ND	0.73	pg/L	SW846 8290
2,3,4,7,8-PeCDF	ND	0.71	pg/L	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.97	pg/L	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.0	pg/L	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.0	pg/L	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.1	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.48	pg/L	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.39	pg/L	SW846 8290
OCDF	ND	1.2	pg/L	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	92	(40 - 135)
13C-1,2,3,7,8-PeCDD	87	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	90	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	89	(40 - 135)
13C-OCDD	93	(40 - 135)
13C-2,3,7,8-TCDF	87	(40 - 135)
13C-1,2,3,7,8-PeCDF	82	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	76	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	84	(40 - 135)

BASIC LABORATORY, INC.

WATER CODE SECTION 13267 (CTR) - METALS

Report To: GEO ANALYTICAL LABORATORIES
1405 KANSAS AVENUE SUITE A
MODESTO CA 95351

Attention: SHANNON INGRAM

Lab Number: 0206336-3
Date: 06/21/02
Phone: 209-572-0900
Date/Time Sampled: 06/10/02/1000
Date Received: 06/11/02
P.O. #:
Page 3 of 4 - Metals

Description: N305694 - OUTFALL R3

CTR No.	Method	Test	Units	Results	Qualifier	CQL	MDL	RL	Date Analyzed
8	1631	Mercury	ng/l	8.75		0.5	0.20	0.50	06/20/02

Comments: California D.O.H.S. Cert. #1677.
ND - Not detected. RL - Minimum Level of Quantitation.
MDL- Method Detection Limit. DNQ Est. Conc. - Detected, but not Quantified.
ng/l - Nanogram/liter. ug/l - Microgram/liter. CQL - Criterion Quantitation Limit.

Reported by: Bernice Kidd

E.S BABCOCK & SONS, INC.
Established 1906

NELAP #02101CA ELAP#1156
6100 Quail Valley Court Riverside, CA 92507-0704
P.O. Box 432 Riverside, CA 92502-0432
PH (909) 653-3351 FAX (909) 653-1662
e-mail: esbsales@aol.com
www.babcocklabs.com

Client Name: GeoAnalytical Laboratory
Contact: Shannon Ingram
Address: 1405 Kansas Ave. Ste. A
Modesto CA, 95351

Work Order No: A2F0502
Project Name: No Project
Project Number: No Project
Report Date: 03-Jul-2002

Laboratory Reference Number
A2F0502-03

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
N305694 - Outfall R3	Liquid	06/10/02 10:00	06/11/02 8:05

Analyte(s)	Result	*RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series								
Arsenic	3.4	1.0	0.73	ug/L	EPA 6020	06/27/02 17:30	dma	
Copper	2.4	0.50	0.072	ug/L	EPA 6020	06/27/02 17:30	dma	
Nickel	5.8	5.0	0.17	ug/L	EPA 6020	06/27/02 17:30	dma	

*Reportable Detection Limit

CREDITED IN ACCORDANCE WI
nelac

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/17/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/10/02
Date Completed: 6/14/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R_3
Lab ID: N305694

Method	RL	MDL	Analyte	Results	Units	Flag
335.2	5	5	Cyanide	ND	µg/L	
7199	5	0.2	Chromium VI	0.8	µg/L	DNQ
350.2	500	500	Ammonia as N	ND	µg/L	
300.0	1000	100	Chloride	207000	µg/L	
200.7	1000	1000	Hardness as $CaCO_3$	328000	µg/L	
425.1	50	28	MBAS	ND	µg/L	
300.0	2000	280	Nitrate as N	3500	µg/L	
300.0	400	380	Nitrite as N	ND	µg/L	
150.1	NA	NA	pH	8.0	Std.Units	
365.2	10	10	Total Phosphorous	ND	µg/L	
120.1	1.0	0.76	Electro Conductivity (EC)	1480	µmhos/cm	
300.0	500	260	Sulfate	278000	µg/L	
376.1	1000	890	Sulfide as S	ND	µg/L	
377.1	2000	2000	Sulfite as SO_3	ND	µg/L	
160.1	10000	10000	TDS(Filterable Residue)	988000	µg/L	

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305693-Outfall R2 Received: 6/11/02 Collected: 6/10/02 9:30
Lab ID: 0206256-02B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND		5.0	µg/L	1.0		6/18/02

Client Sample ID: N305693-Outfall R2 Received: 6/11/02 Collected: 6/10/02 9:30
Lab ID: 0206256-02D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Diquat	ND		0.40	µg/L	1.0	6/12/02	6/17/02

Client Sample ID: N305694-Outfall R3 Received: 6/11/02 Collected: 6/10/02 10:00
Lab ID: 0206256-03A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Methomyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fenuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Monuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propoxur	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbofuran	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbaryl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fluometuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Diuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propham	ND		10	µg/L	1.0	6/12/02	6/19/02
Siduron	ND		10	µg/L	1.0	6/12/02	6/19/02
Methiocarb	ND		10	µg/L	1.0	6/12/02	6/19/02
Linuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Swep	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Chlorpropham	ND		10	µg/L	1.0	6/12/02	6/19/02
Barbane	ND		10	µg/L	1.0	6/12/02	6/19/02
Neburon	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Surrogate: Simazine	79.7		57.8-109	% Rec	1.0	6/12/02	6/19/02

NORTH COAST LABORATORIES
5680 West End Road • Arcata California 95521 • 707-822-4649 • FAX 707-822-6831

Westmont, NJ (856) 858-1260 | Piscataway, NJ (908) 981-0550 | Carle Place, NY (516) 997-7251 | Smyrna, GA (404) 333-6066 | Melbourne, FL (407) 253-4224 | Ann Arbor, MI (313) 668-6810 | Milpitas, CA (408) 934-7010

Tuesday, June 25, 2002

GeoAnalytical Laboratories, Inc.
1405 Kansas Ave.
Suite A
Modesto, CA 95351

Project: N161-12
Attention: Shannon Ingram
Ref Number: CA022583
Date Sampled 06-10-02
Date Filtered 06-11-02
Date Analyzed 06-24-02

Asbestos Analysis in Water by Transmission Electron Microscopy (TEM) Performed by Method EPA/600/R-94/134 - (100.2) "Determination of Asbestos Structures Over 10μm In Length in Drinking Water"; by Brackett, Clark & Millette

SAMPLE ID	#ASBESTOS STRUCTURES >10μm	#NON-ASBESTOS FIBROUS STRUCTURES	TYPE(S) OF ASBESTOS	CONCENTRATION OF ASBESTOS Fibers (MILLIONS/LITER) >10μm	95% Confidence Limits (Lower-Upper) (MILLIONS/LITERS) >10 μm	DETECTION LIMIT (MFL)
N305692- outfall R1**	0	0	None Detected	<0.20	0-0.73	0.20
N305693- outfall R2**	0	0	None Detected	<0.20	0-0.73	0.20
N305694- outfall R3**	0	0	None Detected	<0.27	0-0.73	0.27
N305695- outfall R4**	0	0	None Detected	<0.55	0-0.73	0.55
EMSL Blank	0	0	None Detected	<0.20	0-0.73	0.20

**Samples that contain high levels of particulate which require the laboratory to filter a dilution less than the minimum recommended method volume of 50 ml, will necessarily have higher detection limits. Refer to EPA/600/R-94/134 Method 100.2, Sections 11.10 and 13.6.

EPA Limit = 7 million fibers per liter for fibers greater than 10 microns in length.
California Title 22 Limit = 7 million fibers per liter for fibers greater than 10 microns in length.

Analyst

Approved Signatory

ACCREDITATIONS: CA STATE ELAP #1620

July 2, 2002

GeoAnalytical Laboratory
Attn: Shannon Ingram
1405 Kansas Ave., Suite A.
Modesto, CA 95351

Dear Ms. Ingram:

Re: ESB Lab Reference Numbers A2F0502-02, A2F0502-03, and A2F0502-04.

This letter is in regard to the water samples submitted for tributyl tin analyses.

No results are available for the requested tributyl tin analyses because the batch acceptance criteria were not met. A review of the batch indicates that both the method blank and duplicate were outside the laboratory acceptance criteria. There was not sufficient sample for re-analysis.

Please feel free to contact me if there are any questions.

Sincerely,

Sylvia H. Pastor
QA Manager

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/13/02
Date Completed: 6/13/02

Sample ID: Outfall R_4
Lab ID: N305695

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	20	17	Acrolein	ND	µg/L	
	2	0.32	Acrylonitrile	ND		
	0.5	0.12	Benzene	ND		
	0.5	0.20	Carbon tetrachloride	ND		
	2	0.16	Chlorobenzene	ND		
	5	0.17	1,2,4-trichlorobenzene	ND		
	1	0.14	1,1-dichloroethane	ND		
	0.5	0.40	1,2-dichloroethane	ND		
	2	0.14	1,1,1-trichloroethane	ND		
	0.5	0.10	1,1,2-trichloroethane	ND		
	0.5	0.11	1,1,2,2-tetrachloroethane	ND		
	2	0.26	Chloroethane	ND		
	0.5	0.12	Chloroform	0.22		DNQ
	2	0.13	1,2-dichlorobenzene	ND		
	2	0.11	1,3-dichlorobenzene	ND		
	2	0.11	1,4-dichlorobenzene	ND		
	0.5	0.14	1,1-dichloroethene	ND		
	1	0.17	trans-1,2-dichloroethene	ND		
	0.5	0.13	1,2-dichloropropane	ND		
	0.5	0.19	1,3-dichloropropene	ND		
	2	0.15	Ethylbenzene	ND		
	2.0	0.37	Chloromethane	ND		
	2	0.91	Bromomethane	ND		
	2	0.11	Bromoform	ND		
	0.5	0.14	Dichlorobromomethane	ND		
	0.5	0.13	Dibromochloromethane	ND		
	0.5	0.18	Tetrachloroethene	ND		
	2	0.14	Toluene	ND		
	2	0.17	Trichloroethene	ND		
	0.5	0.14	Vinyl chloride	ND		
	1	0.26	2-Chloroethyl vinyl Ether	ND		
	0.5	0.14	cis-1,2-Dichloroethene	ND		
	2	0.06	Dichloromethane (Methylene chloride)	ND		
	10	0.16	Naphthalene	ND		
	3	0.15	Methyl-tert-butyl ether (MTBE)	ND		
	5	0.20	Trichlorofluoromethane	ND		
	10	0.16	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		
	0.5	0.11	Styrene	ND		
	0.5	0.34	Xylenes,total	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
1,2-Dichloroethane-d_4	5.00	5.61	112.2	72-132
2-Bromo-1-chloropropane	5.00	5.50	110.0	71-134
4-Bromofluorobenzene	5.00	4.78	95.6	74-132

Mario D'Onofrio

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS
8270C

Report # N161-12

Date: 6/14/02

City of Turlock
1 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Sample ID: Outfall R_4
Lab ID: N305695

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	3	2.6	Phenol	ND	µg/L	
	2	1.1	Bis(2-chloroethyl) Ether	ND		
	2	0.9	2-Chlorophenol	ND		
	10	1.1	Bis(2-chloroisopropyl) Ether	ND		
	5	0.8	N-Nitroso-di-n-propylamine	ND		
	1	0.8	Hexachloroethane	ND		
	10	1.7	Nitrobenzene	ND		
	2	1.8	Isophorone	ND		
	10	2.3	2-Nitrophenol	ND		
	2	1.0	2,4-Dimethylphenol	ND		
	5	3.3	Bis(2-chloroethoxy)methane	ND		
	3	2.1	2,4-Dichlorophenol	ND		
	5	3.2	4-Chloro-3-methylphenol	ND		
	5	2.6	Hexachlorocyclopentadiene	ND		
	10	1.8	2,4,6-Trichlorophenol	ND		
	10	1.1	2-Chloronaphthalene	ND		
	2	1.0	Dimethyl Phthalate	ND		
	10	1.0	Acenaphthylene	ND		
	1	0.7	Acenaphthene	ND		
	5	3.2	2,4-Dinitrophenol	ND		
	10	4.1	4-Nitrophenol	ND		
	5	3.0	2,4-Dinitrotoluene	ND		
	5	1.4	2,6-Dinitrotoluene	ND		
	2	0.6	Diethylphthalate	ND		
	5	0.8	4-Chloro-phenylphenylether	ND		
	10	0.9	Fluorene	ND		
	10	7.5	4,6-Dinitro-2-methylphenol	ND		
	1	0.9	N-Nitrosodiphenylamine	ND		
	10	1.0	4-Bromophenyl-phenylether	ND		
	1	0.7	Hexachlorobenzene	ND		
	8	7.3	Pentachlorophenol	ND		
	5	0.4	Phenanthrene	ND		
	10	1.2	Anthracene	ND		

Report # N161-12

CERTIFICATE OF ANALYSIS
8270C

Sample ID: Outfall R_4
Lab ID: N305695

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	10	0.3	Di-n-butylphthalate	ND	µg/L	
	10	0.6	Fluoranthene	ND		
	10	1.3	Pyrene	ND		
	10	1.6	Butylbenzylphthalate	ND		
	5	2.2	3,3'-Dichlorobenzidine	ND		
	10	1.4	Benzo(a)anthracene	ND		
	5	0.8	Bis(2-ethylhexyl)phthalate	ND		
	5	1.1	Chrysene	ND		
	10	1.3	Di-n-octylphthalate	ND		
	3	2.5	Benzo(k)fluoranthene	ND		
	2	0.9	Benzo(a)pyrene	ND		
	6	5.8	Indeno(1,2,3-c,d)pyrene	ND		
	2	1.3	Dibenzo(a,h)anthracene	ND		
	5	1.0	Benzo(g,h,i)perylene	ND		
	1	1.0	1,2-Diphenyl hydrazine	ND		
	5	2.5	Benzidine	ND		
	5	2.1	N-Nitrodimethylamine	ND		
	5	2.5	1,2-Benzanthracene	ND		
	5	2.5	Di(2-ethylhexyl) adipate	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
Nitrobenzene-d_5	100	64.57	64.57	35-114
2-Fluorobiphenyl	100	83.90	83.90	43-141
Terphenyl-d_{14}	100	109.36	109.36	33-141
2-fluorophenyl	150	76.01	50.67	21-100
Phenol-d_5	150	49.57	33.05	10-94
2,4,6-Tbromophenol	150	127.52	85.01	10-123

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8081A

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Sample ID: Outfall R_4
Lab ID: N305695

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8081A	0.10	0.09	Alpha-BHC	ND	µg/L	
	0.20	0.11	Gamma-BHC	ND		
	0.20	0.11	Heptachlor	ND		
	0.10	0.08	Beta-BHC	ND		
	0.20	0.13	Delta-BHC	ND		
	0.10	0.09	Aldrin	ND		
	0.10	0.10	Heptachlor Epoxide	ND		
	0.10	0.09	Endosulfan 1	ND		
	0.10	0.08	DDE	ND		
	0.10	0.07	Dieldrin	ND		
	0.20	0.09	Endrin	ND		
	0.10	0.13	DDD	ND		
	0.10	0.05	Endosulfan 2	ND		
	0.10	0.08	DDT	ND		
	0.10	0.07	Endrin Aldehyde	ND		
	0.30	0.22	Endosulfan Sulfate	ND		
	10	0.31	Methoxychlor	ND		
	0.50	0.50	Toxaphene	ND		
	0.50	0.50	Chlordane	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
TCMX	0.25	0.21	84.0	63.2-121
DBC	0.50	0.49	98.0	68.2-135

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8082

Report # N161-12

Date: 6/18/02

ty of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/15/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_4
Lab ID: N305695

Method	RL	MDL	Analyte	Results	Units	Flags
8082	0.5	0.05	Arochlor 1016	ND	µg/L	
	0.5	0.14	Arochlor 1221	ND		
	0.5	0.09	Arochlor 1232	ND		
	0.5	0.06	Arochlor 1242	ND		
	0.5	0.15	Arochlor 1248	ND		
	0.5	0.06	Arochlor 1254	ND		
	0.5	0.22	Arochlor 1260	ND		

Gregory Merciadis

Donna Keller

Certification # 1157

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

504.1

Report # N161-12

Date: 6/12/02

ity of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/12/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_4
Lab ID: N305695

Method	RL	MDL	Analyte	Results	Units	Flags
504.1	0.01	0.005	(DBCP)1,2-Dibromo-3-Chloroprop	ND	µg/L	
	0.02	0.012	(EDB) Ethylene dibromide	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

507

Report # N161-12

Date: 6/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/14/02
Date Completed: 6/14/02

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R_4
Lab ID: N305695

Method	RL	MDL	Analyte	Results	Units	Flags
507	1	0.06	Atrazine (AATREX)	ND	µg/L	
	2	0.11	Molinate (ORDRAM)	ND		
	4	0.15	Simazine (PRINCEP)	ND		
	1	0.66	Alachlor	ND		
	0.25	0.05	Diazinon	ND		
	1	0.01	Chlorpyrifos	ND		
	0.38	1.42	Butachlor	ND		
	0.25	0.05	Diazinon	ND		
	10.0	0.13	Dimethoate (CYGON)	ND		
	10.0	0.20	Metolachlor	ND		
	2.0	0.18	Prometryn (CAPAROL)	ND		
	0.5	0.44	Propachlor	ND		
	1.0	0.17	Metribuzin	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Vernolate	5.00	4.41	88.2	70-130

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

515.1

Report # N161-12

Date: 6/14/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/12/02
Date Completed: 6/13/02

Sample ID: Outfall R_4
Lab ID: N305695

Date Sampled: 6/10/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
515.1	2	0.46	Bentazon (BASAGRAN)	ND	µg/L	
	10	0.97	2,4-D	ND		
	1	0.51	2,4,5-TP (Silvex)	ND		
	10	0.08	Dalapon	ND		
	2	0.27	Dinoseb (DNBP)	ND		
	1	0.19	Picloram	ND		
	1.5	0.01	Dicamda (BANVEL)	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
DCAA	5.00	4.18	83.6	68-120

Gregory Merciadis

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/25/02

ity of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/11/02
Date Completed: 6/19/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R_4
Lab ID: N305695

Method	RL	MDL	Analyte	Results	Units	Flag
6010B	50	18	Aluminum	284	µg/L	
7041	5	3	Antimony	111	µg/L	
6010B	100	13	Barium	64	µg/L	DNQ
7091	1	0.8	Beryllium	ND	µg/L	
7131A	0.25	0.16	Cadmium	ND	µg/L	
7191	2	1.5	Chromium	ND	µg/L	
7199	5	0.2	Chromium VI	0.6	µg/L	DNQ
6010B	100	16	Iron	203	µg/L	
7421	0.5	0.3	Lead	0.4	µg/L	DNQ
6010B	20	9.8	Manganese	24	µg/L	
7740	5	3.2	Selenium	ND	µg/L	
6010B	1	0.1	Silver	ND	µg/L	
7841	1	0.9	Thallium	ND	µg/L	
6010B	10	2	Zinc	3	µg/L	DNQ

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305695-Outfall R4 Received: 6/11/02 Collected: 6/10/02 11:00
Lab ID: 0206256-04A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Methomyl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fenuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Monuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propoxur	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbofuran	ND		10	µg/L	1.0	6/12/02	6/19/02
Carbaryl	ND		10	µg/L	1.0	6/12/02	6/19/02
Fluometuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Diuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Propham	ND		10	µg/L	1.0	6/12/02	6/19/02
Siduron	ND		10	µg/L	1.0	6/12/02	6/19/02
Methiocarb	ND		10	µg/L	1.0	6/12/02	6/19/02
Linuron	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Swep	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Chlorpropham	ND		10	µg/L	1.0	6/12/02	6/19/02
Barbane	ND		10	µg/L	1.0	6/12/02	6/19/02
Neburon	ND		4.0	µg/L	1.0	6/12/02	6/19/02
Surrogate: Simazine	90.8		57.8-109	% Rec	1.0	6/12/02	6/19/02

Client Sample ID: N305695-Outfall R4 Received: 6/11/02 Collected: 6/10/02 11:00
Lab ID: 0206256-04B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND		5.0	µg/L	1.0		6/18/02

Client Sample ID: N305695-Outfall R4 Received: 6/11/02 Collected: 6/10/02 11:00
Lab ID: 0206256-04C

Test Name: Endothall Reference: EPA 548.1

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Endothall	ND		45	µg/L	1.0	6/13/02	6/16/02
Surrogate: 2,3-D	62.8	S	73.2-115	% Rec	1.0	6/13/02	6/16/02

NORTH COAST LABORATORIES
5680 West End Road • Arcata California 95521 • 707-822-4649 • FAX 707-822-6831

Date: 21-Jun-02
WorkOrder: 0206256

ANALYTICAL REPORT

Client Sample ID: N305695-Outfall R4 Received: 6/11/02 Collected: 6/10/02 11:00
Lab ID: 0206256-04D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Qual	Limit	Units	DF	Extracted	Analyzed
Diquat	ND		0.40	µg/L	1.0	6/12/02	6/17/02

NORTH COAST LABORATORIES
5680 West End Road • Arcata California 95521 • 707-822-4649 • FAX 707-822-6831

GEOANALYTICAL LABORATORIES INC

Client Sample ID: N305695-OUTFALL R4

Trace Level Organic Compounds

Lot-Sample #...: G2F110270-004 Work Order #...: E2T4M1AC Matrix.....: WATER
Date Sampled...: 06/10/02 Date Received..: 06/11/02
Prep Date.....: 06/19/02 Analysis Date..: 06/27/02
Prep Batch #...: 2170532

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.52	pg/L	SW846 8290
1,2,3,7,8-PeCDD	ND	0.93	pg/L	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.67	pg/L	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.73	pg/L	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.63	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	1.4	pg/L	SW846 8290
OCDD	ND	10	pg/L	SW846 8290
2,3,7,8-TCDF	ND	0.71	pg/L	SW846 8290
1,2,3,7,8-PeCDF	ND	0.59	pg/L	SW846 8290
2,3,4,7,8-PeCDF	ND	0.58	pg/L	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.75	pg/L	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.77	pg/L	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.78	pg/L	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.83	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.67	pg/L	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.36	pg/L	SW846 8290
OCDF	ND	0.91	pg/L	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	91	(40 - 135)
13C-1,2,3,7,8-PeCDD	86	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	88	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	88	(40 - 135)
13C-OCDD	88	(40 - 135)
13C-2,3,7,8-TCDF	83	(40 - 135)
13C-1,2,3,7,8-PeCDF	81	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	78	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	83	(40 - 135)

BASIC LABORATORY, INC.

WATER CODE SECTION 13267 (CTR) - METALS

Report To: GEO ANALYTICAL LABORATORIES
1405 KANSAS AVENUE SUITE A
MODESTO CA 95351

Attention: SHANNON INGRAM

Lab Number: 0206336-4
Date: 06/21/02
Phone: 209-572-0900
Date/Time Sampled: 06/10/02/1100
Date Received: 06/11/02
P.O. #:
Page 4 of 4 - Metals

Description: N305695 - OUTFALL R4

CTR No.	Method	Test	Units	Results	Qualifier	CQL	MDL	RL	Date Analyzed
8	1631	Mercury	ng/l	4.61		0.5	0.20	0.50	06/20/02

Comments: California D.O.H.S. Cert. #1677.
ND - Not detected. RL - Minimum Level of Quantitation.
MDL- Method Detection Limit. DNQ Est. Conc. - Detected, but not Quantified.
ng/l - Nanogram/liter. ug/l - Microgram/liter. CQL - Criterion Quantitation Limit.

Reported by: Bernice Kidd

E.S BABCOCK & SONS, INC.
Established 1906

NELAP #02101CA ELAP#1156
6100 Quail Valley Court Riverside, CA 92507-0704
P.O. Box 432 Riverside, CA 92502-0432
PH (909) 653-3351 FAX (909) 653-1662
e-mail: esbsales@aol.com
www.babcocklabs.com

Client Name: GeoAnalytical Laboratory
Contact: Shannon Ingram
Address: 1405 Kansas Ave. Ste. A
Modesto CA, 95351

Work Order No: A2F0502
Project Name: No Project
Project Number: No Project
Report Date: 03-Jul-2002

Laboratory Reference Number
A2F0502-04

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
N305695 - Outfall R4	Liquid	06/10/02 11:00	06/11/02 8:05

Analyte(s)	Result	*RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids; EPA SW846 Series								
Arsenic	3.8	1.0	0.73	ug/L	EPA 6020	06/27/02 17:33	dma	
Copper	3.0	0.50	0.072	ug/L	EPA 6020	06/27/02 17:33	dma	
Nickel	6.1	5.0	0.17	ug/L	EPA 6020	06/27/02 17:33	dma	

*Reportable Detection Limit

EDITED IN ACCORDANCE

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N161-12

Date: 6/17/02

.ty of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Outfall Sampling

PO#

Date Rec'd: 6/10/02
Date Started: 6/10/02
Date Completed: 6/14/02

Date Sampled: 6/10/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R_4
Lab ID: N305695

Method	RL	MDL	Analyte	Results	Units	Flag
335.2	5	5	Cyanide	ND	µg/L	
7199	5	0.2	Chromium VI	0.6	µg/L	DNQ
350.2	500	500	Ammonia as N	ND	µg/L	
300.0	1000	100	Chloride	166000	µg/L	
200.7	1000	1000	Hardness as $CaCO_3$	282000	µg/L	
425.1	50	28	MBAS	ND	µg/L	
300.0	2000	280	Nitrate as N	4400	µg/L	
300.0	400	380	Nitrite as N	ND	µg/L	
150.1	NA	NA	pH	8.0	Std.Units	
365.2	10	10	Total Phosphorous	128	µg/L	
120.1	1.0	0.76	Electro Conductivity (EC)	1330	µmhos/cm	
300.0	500	260	Sulfate	202000	µg/L	
376.1	1000	890	Sulfide as S	ND	µg/L	
377.1	2000	2000	Sulfite as SO_3	ND	µg/L	
160.1	10000	10000	TDS(Filterable Residue)	901000	µg/L	

Rohit Bombaywala

Donna Keller

Westmont, NJ (856) 858-1260 | Piscataway, NJ (908) 981-0550 | Carle Place, NY (516) 997-7251 | Smyrna, GA (404) 333-6066 | Melbourne, FL (407) 253-4224 | Ann Arbor, MI (313) 668-6810 | Milpitas, CA (408) 934-7010

Tuesday, June 25, 2002

GeoAnalytical Laboratories, Inc.
1405 Kansas Ave.
Suite A
Modesto, CA 95351

Project: N161-12
Attention: Shannon Ingram
Ref Number: CA022583
Date Sampled 06-10-02
Date Filtered 06-11-02
Date Analyzed 06-24-02

Asbestos Analysis in Water by Transmission Electron Microscopy (TEM) Performed by Method EPA/600/R-94/134 - (100.2) "Determination of Asbestos Structures Over 10μm In Length in Drinking Water"; by Brackett, Clark & Millette

SAMPLE ID	#ASBESTOS STRUCTURES >10μm	#NON-ASBESTOS FIBROUS STRUCTURES	TYPE(S) OF ASBESTOS	CONCENTRATION OF ASBESTOS Fibers (MILLIONS/LITER) >10μm	95% Confidence Limits (Lower-Upper) (MILLIONS/LITERS) >10 μm	DETECTION LIMIT (MFL)
N305692- outfall R1**	0	0	None Detected	<0.20	0-0.73	0.20
N305693- outfall R2**	0	0	None Detected	<0.20	0-0.73	0.20
N305694- outfall R3**	0	0	None Detected	<0.27	0-0.73	0.27
N305695- outfall R4**	0	0	None Detected	<0.55	0-0.73	0.55
EMSL Blank	0	0	None Detected	<0.20	0-0.73	0.20

**Samples that contain high levels of particulate which require the laboratory to filter a dilution less than the minimum recommended method volume of 50 ml, will necessarily have higher detection limits. Refer to EPA/600/R-94/134 Method 100.2, Sections 11.10 and 13.6.

EPA Limit = 7 million fibers per liter for fibers greater than 10 microns in length.
California Title 22 Limit = 7 million fibers per liter for fibers greater than 10 microns in length.

Analyst

Approved Signatory

ACCREDITATIONS: CA STATE ELAP #1620

July 2, 2002

GeoAnalytical Laboratory
Attn: Shannon Ingram
1405 Kansas Ave., Suite A.
Modesto, CA 95351

Dear Ms. Ingram:

Re: ESB Lab Reference Numbers A2F0502-02, A2F0502-03, and A2F0502-04.

This letter is in regard to the water samples submitted for tributyl tin analyses.

No results are available for the requested tributyl tin analyses because the batch acceptance criteria were not met. A review of the batch indicates that both the method blank and duplicate were outside the laboratory acceptance criteria. There was not sufficient sample for re-analysis.

Please feel free to contact me if there are any questions.

Sincerely,

Sylvia H. Pastor
QA Manager

BASIC LABORATORY, INC

Report To: GEO ANALYTICAL LABORATORIES
1405 KANSAS AVENUE SUITE A
MODESTO CA 95351

Attention: PRIYA SAHOTA

Project Name: N294-05
Sample Type: WASTEWATER

Lab Number: 0210707
Date: 11/05/02
Phone: 209-572-0900
Date Sampled: 10/20-21/02
Date Received: 10/22/02
P.O. #:
Page 1 of 1

Sample Description: (1)N310808-PLANT INFLUENT; (2)N310809-PLANT EFF, (3)N310810-PLANT EFFLUENT, (4)N310811-OUTFALL R1, (5)N310812-OUTFALL R2, (6)N310813-OUTFALL R3, (7)N310814-OUTFALL R4, (8)N310815-FIELD BLANK

METHOD	TEST	UNITS	1	2	3	4	5	6	7	8	MDL	ML	DATE ANALYZED
1631	Low Level Mercury	ng/l	285	12.5	9.69	2.75	12.6	8.25	4.24	0.53	0.20	0.50	10/26/02

Comments:
California D.O.H.S. Cert. #1677. * = Confirmed. > = Greater than the result. < = Less than the reporting limit. ≥ = Greater than or equal to the result. n = Not detected at detection limit. MDL = Method Detection Limit. MCL/AL = Maximum Contaminant Level / Action Level TTLC = Total Threshold Limit Concentration. STLC = Soluble Threshold Limit Concentration. TCLP = Toxicity Characteristic Leachate Procedure. ML - Minimum Level of Quantitation. **DNQ - Detected, but not quantified.

Reported By:

0210707.xls

Client: GeoAnalytical Laboratories, Inc.
Method: EPA Method(s) GC/FPD
Date Completed: 11/14/2002
Matrix: Waste Water
Units: ng/L

ToxScan Number: T-20622

Client Sample ID	ToxScan Lab ID	Analyte	Sample Value	Reporting Limit
N310826 - Outfall R1	20622-01	Tributyltin	ND	2
N310827 - Outfall R2	20622-02	Tributyltin	ND	2
N310828 - Outfall R3	20622-03	Tributyltin	ND	2
N310829 - Outfall R4	20622-04	Tributyltin	ND	2

Westmont, NJ (856) 858-1260 | Piscataway, NJ (908) 981-0550 | Carle Place, NY (516) 997-7251 | Smyrna, GA (404) 333-6066 | Melbourne, FL (407) 253-4224 | Ann Arbor, MI (313) 668-6810 | Milpitas, CA (408) 934-7010

EMSL

Wednesday, October 30, 2002

GeoAnalytical Laboratories, Inc.
1405 Kansas Ave.
Suite A
Modesto, CA 95351

Project: N294-07
Attention: Shannon Ingram
Ref Number: CA024475
Date Sampled 10-21-02
Date Filtered 10-22-02
Date Analyzed 10-28-02

Asbestos Analysis in Water by Transmission Electron Microscopy (TEM) Performed by Method EPA/600/R-94/134 - (100.2) "Determination of Asbestos Structures Over 10μm In Length in Drinking Water"; by Brackett, Clark & Millette

SAMPLE ID	#ASBESTOS STRUCTURES >10μm	#NON-ASBESTOS FIBROUS STRUCTURES	TYPE(S) OF ASBESTOS	CONCENTRATION OF ASBESTOS Fibers (MILLIONS/LITER) >10μm	95% Confidence Limits (Lower-Upper) (MILLIONS/LITERS) >10 μm	DETECTION LIMIT (MFL)
N310820	0	0	None Detected	<5.24	0-20.96	5.24**
N310821	0	0	None Detected	<0.52	0-2.10	0.52**
N310822	0	0	None Detected	<0.20	0-0.73	0.20
N310823	0	0	None Detected	<0.20	0-0.73	0.20
N310824	0	0	None Detected	<1.05	0-4.19	1.05**
N310825	0	0	None Detected	<0.52	0-2.10	0.52**
EMSL Blank	0	0	None Detected	<0.20	0-0.73	0.20

*Samples that contain high levels of particulate which require the laboratory to filter a dilution less than the minimum recommended method volume of 50 ml, will necessarily have higher detection limits. Refer to EPA/600/R-94/134 Method 100.2, Sections 11.10 and 13.6.

EPA Limit = 7 million fibers per liter for fibers greater than 10 microns in length.
California Title 22 Limit = 7 million fibers per liter for fibers greater than 10 microns in length.

**Sensitivity is greater than 0.20 due to particulate loading.

Analyst

Approved Signatory

ACCREDITATIONS: CA STATE ELAP #1620

Date: 29-Oct-02
WorkOrder: 0210484

ANALYTICAL REPORT

Client Sample ID: N310639-Plant Influent — Received: 10/17/02 — Collected: 10/15/02 13:20
Lab ID: 0210484-01A

Test Name: Diuron — Reference: EPA 632 Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Diuron	ND	1.0	µg/L	1.0	10/18/02	10/24/02
Surrogate: Simazine	109	57.9-130	% Rec	1.0	10/18/02	10/24/02

Client Sample ID: N310639-Plant Influent — Received: 10/17/02 — Collected: 10/15/02 13:20
Lab ID: 0210484-01B

Test Name: Endothall — Reference: EPA 548.1

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Endothall	ND	90	µg/L	1.0	10/22/02	10/25/02
Surrogate: 2,3-D	186	70-130	% Rec	1.0	10/22/02	10/25/02

Client Sample ID: N310639-Plant Influent — Received: 10/17/02 — Collected: 10/15/02 13:20
Lab ID: 0210484-01C

Test Name: Glyphosate — Reference: EPA 547

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND	5.0	µg/L	1.0		10/25/02

Client Sample ID: N310639-Plant Influent — Received: 10/17/02 — Collected: 10/15/02 13:20
Lab ID: 0210484-01D

Test Name: Diquat — Reference: EPA 549.2

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Diquat	ND	0.40	µg/L	1.0	10/22/02	10/25/02

Client Sample ID: ~~N310640-Plant Effluent~~ — Received: 10/17/02 — Collected: 10/15/02 14:00
Lab ID: 0210484-02A

Test Name: Diuron — Reference: EPA 632 Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Diuron	ND	1.0	µg/L	1.0	10/18/02	10/24/02
Surrogate: Simazine	86.8	57.9-130	% Rec	1.0	10/18/02	10/24/02

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8270C

port # N288-19

Date: 10/25/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/16/02
Date Completed: 10/17/02

Date Sampled: 10/15/02
Time:
Sampler : Pete Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	1	0.2	Phenol	ND	µg/L	
	1	0.2	Bis(2-chloroethyl) Ether	ND		
	2	0.9	2-Chlorophenol	ND		
	10	1.1	Bis(2-chloroisopropyl) Ether	ND		
	5	0.8	N-Nitroso-di-n-propylamine	ND		
	10	1.7	Nitrobenzene	ND		
	1	0.2	Isophorone	ND		
	10	2.3	2-Nitrophenol	ND		
	2	1.0	2,4-Dimethylphenol	ND		
	5	3.3	Bis(2-chloroethoxy)methane	ND		
	1	0.3	2,4-Dichlorophenol	ND		
	5	3.2	4-Chloro-3-methylphenol	ND		
	5	2.6	Hexachlorocyclopentadiene	ND		
	10	1.8	2,4,6-Trichlorophenol	ND		
	10	1.1	2-Chloronaphthalene	ND		
	2	1.0	Dimethyl Phthalate	ND		
	10	1.0	Acenaphthylene	ND		
	1	0.7	Acenaphthene	ND		
	5	3.2	2,4-Dinitrophenol	ND		
	10	4.1	4-Nitrophenol	ND		
	5	3.0	2,4-Dinitrotoluene	ND		
	5	1.4	2,6-Dinitrotoluene	ND		
	2	0.6	Diethylphthalate	ND		
	5	0.8	4-Chloro-phenylphenylether	ND		
	10	0.9	Fluorene	ND		
	10	7.5	4,6-Dinitro-2-methylphenol	ND		
	1	0.9	N-Nitrosodiphenylamine	ND		
	10	1.0	4-Bromophenyl-phenylether	ND		
	1	0.7	Hexachlorobenzene	ND		
	1	0.6	Pentachlorophenol	ND		
	5	0.4	Phenanthrene	ND		
	10	1.2	Anthracene	ND		
	2	0.4	Benzo(b)fluoranthene	ND		

Report # N288-19

CERTIFICATE OF ANALYSIS
8270C

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	10	0.3	Di-n-butylphthalate	ND	µg/L	
	10	0.6	Fluoranthene	ND		
	10	1.3	Pyrene	ND		
	10	1.6	Butylbenzylphthalate	ND		
	5	2.2	3,3'-Dichlorobenzidine	ND		
	5	0.8	Bis(2-ethylhexyl)phthalate	16		
	5	1.1	Chrysene	ND		
	10	1.3	Di-n-octylphthalate	ND		
	3	2.5	Benzo(k)fluoranthene	ND		
	2	0.9	Benzo(a)pyrene	ND		
	0.5	0.5	Indeno(1,2,3-c,d)pyrene	ND		
	0.4	0.4	Dibenzo(a,h)anthracene	ND		
	5	1.0	Benzo(g,h,i)perylene	ND		
	1	1.0	1,2-Diphenyl hydrazine	ND		
	5	2.5	Benzidine	ND		
	5	2.1	N-Nitrodimethylamine	ND		
	5	2.5	1,2-Benzanthracene	ND		
	5	2.5	Di(2-ethylhexyl) adipate	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
Nitrobenzene-d_5	100	58.65	58.65	35-114
2-Fluorobiphenyl	100	44.30	44.30	43-141
Terphenyl-d_{14}	100	56.86	56.86	33-141
2-fluorophenyl	150	65.31	43.54	21-100
Phenol-d_5	150	52.89	35.26	10-94
2,4,6-Tbromophenol	150	137.54	91.69	10-123

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8081A

Report # N288-19

Date: 10/23/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/18/02
Date Completed: 10/22/02

Sample ID: Plant Influent (grab)
Lab ID: N310639

Date Sampled: 10/15/02
Time: 1:20pm
Sampler: Pete Gallegos

Method	RL	MDL	Analyte	Results	Units	Flags
8081A	0.10	0.09	Alpha-BHC	ND	µg/L	
	0.20	0.11	Gamma-BHC	ND		
	0.20	0.11	Heptachlor	ND		
	0.10	0.08	Beta-BHC	ND		
	0.20	0.13	Delta-BHC	ND		
	0.10	0.09	Aldrin	ND		
	0.10	0.10	Heptachlor Epoxide	ND		
	0.10	0.09	Endosulfan 1	ND		
	0.10	0.08	DDE	ND		
	0.10	0.07	Dieldrin	ND		
	0.10	0.09	Endrin	ND		
	0.20	0.13	DDD	ND		
	0.10	0.05	Endosulfan 2	ND		
	0.10	0.08	DDT	ND		
	0.10	0.07	Endrin Aldehyde	ND		
	0.30	0.22	Endosulfan Sulfate	ND		
	10	0.31	Methoxychlor	ND		
	0.50	0.50	Toxaphene	ND		
	0.50	0.50	Chlordane	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
TCMX	0.25	0.22	88.0	63.2-121
DBC	0.50	0.48	96.0	68.2-135

Gregory Merciadis

Donna Keller

GeoAnalytical Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

8082

Date: 10/24/02

Report # N288-19

Project: Wastewater Priority Pollutants

Date Rec'd: 10/15/02
Date Started: 10/18/02
Date Completed: 10/22/02

City of Turlock
901 S. Walnut
Turlock CA 95380

PO#

Date Sampled: 10/15/02
Time: 1:20pm
Sampler: Pete Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
8082	0.5	0.05	Arochlor 1016	ND	µg/L	
	0.5	0.14	Arochlor 1221	ND		
	0.5	0.09	Arochlor 1232	ND		
	0.5	0.06	Arochlor 1242	ND		
	0.5	0.15	Arochlor 1248	ND		
	0.5	0.06	Arochlor 1254	ND		
	0.5	0.22	Arochlor 1260	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %

Gregory Merciadis

Donna Keller

GeoAnalytical Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

504.1

Report # N288-19

Date: 10/18/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/15/02
Date Completed: 10/16/02

Date Sampled: 10/15/02
Time:
Sampler : Pete Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
504.1	0.01	0.005	(DBCP)1,2-Dibromo-3-Chloroprop	ND	µg/L	
	0.02	0.012	(EDB) Ethylene dibromide	ND		

Gregory Merciadis

Donna Keller

GeoAnalytical Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

507

port # N288-19

Date: 10/21/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/16/02
Date Completed: 10/17/02

Date Sampled: 10/15/02
Time:
Sampler : Pete Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
507	1	0.06	Atrazine (AATREX)	ND	µg/L	
	2	0.11	Molinate(ORDRAM)	ND		
	4	0.15	Simazine (PRINCEP)	ND		
	1	0.66	Alachlor	ND		
	0.25	0.05	Diazinon	ND		
	1	0.01	Chlorpyrifos	ND		
	1	0.15	Thiobencarb (Bolero)	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Vernolate	5.00	5.49	109.8	70-130

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

515.1

port # N288-19

Date: 10/22/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/17/02
Date Completed: 10/21/02

Date Sampled: 10/15/02
Time:
Sampler : Pete Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
515.1	2	0.46	Bentazon (BASAGRAN)	ND	µg/L	
	10	0.97	2,4-D	ND		
	1	0.51	2,4,5-TP (Silvex)	ND		
	10	0.08	Dalapon	ND		
	2	0.27	Dinoseb (DNBP)	ND		
	1	0.19	Picloram	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
DCAA	5.00	5.04	100.8	68-120

Gregory Merciadis

Donna Keller

Client: GeoAnalytical Laboratories, Inc.
Method: EPA Method(s) GC/FPD
Date Completed: 10/30/2002
Matrix: Waste Water
Units: ng/L

ToxScan Number: T-20618

Client Sample ID	ToxScan Lab ID	Analyte	Sample Value	Reporting Limit
N310639 - Plant Influent	20618-01	Tributyltin	13	2

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

ort # N288-19

Date: 10/25/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/16/02
Date Completed: 10/16/02

Date Sampled: 10/15/02
Time:
Sampler : Pete Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	20	17	Acrolein	ND	µg/L	
	2	0.32	Acrylonitrile	ND		
	0.5	0.12	Benzene	0.34		DNQ
	0.5	0.20	Carbon tetrachloride	ND		
	2	0.16	Chlorobenzene	ND		
	5	0.17	1,2,4-Trichlorobenzene	ND		
	1	0.14	1,1-Dichloroethane	ND		
	0.5	0.40	1,2-Dichloroethane	ND		
	2	0.14	1,1,1-Trichloroethane	ND		
	0.5	0.10	1,1,2-Trichloroethane	ND		
	0.5	0.11	1,1,2,2-Tetrachloroethane	ND		
	2	0.26	Chloroethane	ND		
	0.5	0.12	Chloroform	9.8		
	2	0.13	1,2-Dichlorobenzene	ND		
	2	0.11	1,3-Dichlorobenzene	ND		
	2	0.11	1,4-Dichlorobenzene	3.5		
	0.5	0.14	1,1-Dichloroethene	ND		
	1	0.17	trans-1,2-Dichloroethylene	ND		
	0.5	0.13	1,2-Dichloropropane	ND		
	0.5	0.19	1,3-Dichloropropene	ND		
	2	0.15	Ethylbenzene	ND		
	2.0	0.37	Chloromethane	ND		
	2	0.91	Bromomethane	ND		
	2	0.11	Bromoform	ND		
	0.5	0.14	Dichlorobromomethane	0.7		
	0.5	0.13	Dibromochloromethane	ND		
	0.5	0.18	Tetrachloroethene	ND		
	2	0.14	Toluene	3.3		
	2	0.17	Trichloroethene	ND		
	0.5	0.14	Vinyl chloride	ND		
	1	0.26	2-Chloroethyl vinyl Ether	ND		
	0.5	0.14	cis-1,2-Dichloroethene	ND		
	2	0.06	Dichloromethane (Methylene chloride)	ND		
	10	0.16	Naphthalene	ND		
	3	0.15	Methyl-tert-butyl ether (MTBE)	ND		
	5	0.20	Trichlorofluoromethane	ND		
	10	0.16	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		
	0.5	0.11	Styrene	ND		
	0.5	0.34	Xylenes,total	ND		

Report # N288-19

CERTIFICATE OF ANALYSIS

mple ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	1	0.30	Hexachlorobutadiene	ND	µg/L	
	1	0.12	Hexachloroethane	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
1,2-Dichloroethane-d_4	5.00	5.64	112.80	72-132
2-Bromo-1-chloropropane	5.00	5.54	110.80	71-134
4-Bromofluorobenzene	5.00	4.76	95.20	74-132

JQ=Estimated Concentration

Mario D'Onofrio
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N288-19

Date: 10/30/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/15/02
Date Completed: 11/12/02

Date Sampled: 10/15/02
Time: 1:20pm
Sampler: Peter Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flag
200.8	20	9.8	Manganese	40	µg/L	
200.8	5	0.12	Nickel	ND	µg/L	
200.8	5	3.2	Selenium	ND	µg/L	
200.8	1	0.1	Silver	ND	µg/L	
200.8	1	0.9	Thallium	ND	µg/L	
200.8	10	2	Zinc	181	µg/L	
200.8	50	18	Aluminum	2500	µg/L	
200.8	5	3	Antimony	ND	µg/L	
200.8	5.0	4	Arsenic	9.6	µg/L	
200.8	100	13	Barium	144	µg/L	
200.8	1	0.8	Beryllium	ND	µg/L	
200.8	0.25	0.16	Cadmium	ND	µg/L	
200.8	2	1.5	Chromium	ND	µg/L	
200.7	100	4	Iron	820	µg/L	
200.8	0.5	0.2	Lead	ND	µg/L	
200.8	0.5	0.13	Copper	ND	µg/L	
200.7	1000	30	Sodium	110000	µg/L	
200.8	50	20	Boron	348	µg/L	
200.8	10	0.2	Molybdenum	17	µg/L	

Rohit Bombaywala RG
Rohit Bombaywala

Donna Keller
Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 · Phone (209) 572-0900 · Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N288-19

Date: 11/13/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO# -

Date Rec'd: 10/15/02
Date Started: 10/15/02
Date Completed: 11/11/02

Date Sampled: 10/15/02
Time:
Sampler: Peter Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flag
9014	5	5	Cyanide	ND	µg/L	
350.2	1000	500	Ammonia as N	18000	µg/L	
300.0	1000	100	Chloride	104000	µg/L	
200.7	1000	1000	Hardness as $CaCO_3$	131000	µg/L	
SM5540C	50	28	MBAS	970	µg/L	
300.0	2000	280	Nitrate as N	ND	µg/L	
300.0	400	380	Nitrite as N	ND	µg/L	
150.1	NA	NA	pH	7.0	Std.Units	
365.2	10	10	Total Phosphorous	11000	µg/L	
120.1	1.0	0.76	Electro Conductivity (EC)	960	µmhos/cm	
300.0	500	260	Sulfate	49400	µg/L	
376.1	1000	900	Sulfide	ND	µg/L	
377.1	5000	3500	Sulfite	ND	µg/L	
160.1	10000	5000	TDS (Filterable Residue)	562000	µg/L	
300.0	100	20	Fluoride	ND	µg/L	
218.6	0.5	0.08	Chrome VI	ND	µg/L	
SM3500-Cr D	5		Chrome VI	ND	µg/L	
351.3	1000	800	Total Kjeldahl Nitrogen-N	30000	µg/L	

Rohit Rombaywala

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N288-19

Date: 10/30/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater Priority Pollutants

PO#

Date Rec'd: 10/15/02
Date Started: 10/15/02
Date Completed: 11/12/02

Date Sampled: 10/15/02
Time: 1:20pm
Sampler: Peter Gallegos

Sample ID: Plant Influent (grab)
Lab ID: N310639

Method	RL	MDL	Analyte	Results	Units	Flag
200.8	0.5	0.13	Dissolved Copper	ND	µg/L	

Rohit Bombaywala

Donna Keller

GEOANALYTICAL LABORATORIES INC

Client Sample ID: N310639-PLANT INFLUENT

Trace Level Organic Compounds

Lot-Sample #...: G2J170372-001 Work Order #...: E985N1AA Matrix.....: WATER
Date Sampled...: 10/15/02 Date Received..: 10/17/02
Prep Date.....: 10/24/02 Analysis Date..: 10/31/02
Prep Batch #...: 2297232

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	3.2	pg/L	SW846 8290
1,2,3,7,8-PeCDD	ND	1.4	pg/L	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.2	pg/L	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.48	pg/L	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.84	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	2.9	pg/L	SW846 8290
OCDD	ND	23	pg/L	SW846 8290
2,3,7,8-TCDF	ND	2.6	pg/L	SW846 8290
1,2,3,7,8-PeCDF	ND	0.47	pg/L	SW846 8290
2,3,4,7,8-PeCDF	ND	0.53	pg/L	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.1	pg/L	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.78	pg/L	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.62	pg/L	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.69	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	4.2	pg/L	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	2.4	pg/L	SW846 8290
OCDF	96 J		pg/L	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	92	(40 - 135)
13C-1,2,3,7,8-PeCDD	74	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	82	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	107	(40 - 135)
13C-OCDD	102	(40 - 135)
13C-2,3,7,8-TCDF	86	(40 - 135)
13C-1,2,3,7,8-PeCDF	83	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	98	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	92	(40 - 135)

NOTE(S):

J Estimated result. Result is less than the reporting limit.

Date: 01-Nov-02
WorkOrder: 0210569

ANALYTICAL REPORT

Client Sample ID: Outfall R1 Received: 10/22/02 Collected: 10/21/02 9:45
Lab ID: 0210569-01A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Methomyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fenuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Monuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propoxur	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbofuran	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbaryl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fluometuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Diuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propham	ND	10	µg/L	1.0	10/23/02	10/29/02
Siduron	ND	10	µg/L	1.0	10/23/02	10/29/02
Methiocarb	ND	10	µg/L	1.0	10/23/02	10/29/02
Linuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Swep	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Chlorpropham	ND	10	µg/L	1.0	10/23/02	10/29/02
Barbane	ND	10	µg/L	1.0	10/23/02	10/29/02
Neburon	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Surrogate: Simazine	81.1	57.8-109	% Rec	1.0	10/23/02	10/29/02

Client Sample ID: Outfall R1 Received: 10/22/02 Collected: 10/21/02 9:45
Lab ID: 0210569-01B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND	5.0	µg/L	1.0		10/25/02

Client Sample ID: Outfall R1 Received: 10/22/02 Collected: 10/21/02 9:45
Lab ID: 0210569-01C

Test Name: Endothall Reference: EPA 548.1

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Endothall	ND	45	µg/L	1.0	10/28/02	10/30/02
Surrogate: 2,3-D	104	70-130	% Rec	1.0	10/28/02	10/30/02

NORTH COAST LABORATORIES
5680 West End Road • Arcata, California 95521 • 707-822-4649 • FAX 707-822-6831

Date: 01-Nov-02
WorkOrder: 0210569

ANALYTICAL REPORT

Client Sample ID: Outfall R1 Received: 10/22/02 Collected: 10/21/02 9:45
Lab ID: 0210569-01D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Diquat	ND	0.40	µg/L	1.0	10/25/02	10/30/02

Client Sample ID: Outfall R2 Received: 10/22/02 Collected: 10/21/02 10:00
Lab ID: 0210569-02A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Methomyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fenuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Monuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propoxur	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbofuran	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbaryl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fluometuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Diuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propham	ND	10	µg/L	1.0	10/23/02	10/29/02
Siduron	ND	10	µg/L	1.0	10/23/02	10/29/02
Methiocarb	ND	10	µg/L	1.0	10/23/02	10/29/02
Linuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Swep	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Chlorpropham	ND	10	µg/L	1.0	10/23/02	10/29/02
Barbane	ND	10	µg/L	1.0	10/23/02	10/29/02
Neburon	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Surrogate: Simazine	85.3	57.8-109	% Rec	1.0	10/23/02	10/29/02

Client Sample ID: Outfall R2 Received: 10/22/02 Collected: 10/21/02 10:00
Lab ID: 0210569-02B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND	5.0	µg/L	1.0		10/25/02

NORTH COAST LABORATORIES
5680 West End Road Arcata California 95521 707 822 4649 FAX 707 822 6831

GEOANALYTICAL LABORATORIES INC

Client Sample ID: N310816-OUTFALL R1

Trace Level Organic Compounds

Lot-Sample #...: G2J220270-001 Work Order #...: FAJM81AA Matrix.....: WATER
Date Sampled...: 10/21/02 Date Received..: 10/22/02
Prep Date.....: 10/29/02 Analysis Date..: 11/01/02
Prep Batch #...: 2302416

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.72	pg/L	SW846 8290
1,2,3,7,8-PeCDD	ND	3.0	pg/L	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.98	pg/L	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.92	pg/L	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.85	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.65	pg/L	SW846 8290
OCDD	ND	4.1	pg/L	SW846 8290
2,3,7,8-TCDF	ND	1.9	pg/L	SW846 8290
1,2,3,7,8-PeCDF	ND	0.93	pg/L	SW846 8290
2,3,4,7,8-PeCDF	ND	0.90	pg/L	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.94	pg/L	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.86	pg/L	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.97	pg/L	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.1	pg/L	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.58	pg/L	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.68	pg/L	SW846 8290
OCDF	ND	1.7	pg/L	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	102	(40 - 135)
13C-1,2,3,7,8-PeCDD	92	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	104	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	106	(40 - 135)
13C-OCDD	109	(40 - 135)
13C-2,3,7,8-TCDF	92	(40 - 135)
13C-1,2,3,7,8-PeCDF	90	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	90	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	89	(40 - 135)

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

-port # N294-09

Date: 10/24/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/24/02
Date Completed: 10/24/02

Sample ID: Outfall R1
Lab ID: N310830

Date Sampled: 10/21/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	20	17	Acrolein	ND	µg/L	
	2	0.32	Acrylonitrile	ND		
	0.5	0.12	Benzene	ND		
	0.5	0.20	Carbon tetrachloride	ND		
	2	0.16	Chlorobenzene	ND		
	5	0.17	1,2,4-trichlorobenzene	ND		
	1	0.14	1,1-dichloroethane	ND		
	0.5	0.40	1,2-dichloroethane	ND		
	2	0.14	1,1,1-trichloroethane	ND		
	0.5	0.10	1,1,2-trichloroethane	ND		
	0.5	0.11	1,1,2,2-tetrachloroethane	ND		
	2	0.26	Chloroethane	ND		
	0.5	0.12	Chloroform	ND		
	2	0.13	1,2-dichlorobenzene	ND		
	2	0.11	1,3-dichlorobenzene	ND		
	2	0.11	1,4-dichlorobenzene	ND		
	0.5	0.14	1,1-dichloroethene	ND		
	1	0.17	trans-1,2-dichloroethylene	ND		
	0.5	0.13	1,2-dichloropropane	ND		
	0.5	0.19	1,3-dichloropropene	ND		
	2	0.15	Ethylbenzene	ND		
	2.0	0.37	Chloromethane	ND		
	2	0.91	Bromomethane	ND		
	2	0.11	Bromoform	ND		
	0.5	0.14	Dichlorobromomethane	ND		
	0.5	0.13	Dibromochloromethane	ND		
	0.5	0.18	Tetrachloroethene	ND		
	2	0.14	Toluene	ND		
	2	0.17	Trichloroethene	ND		
	0.5	0.14	Vinyl chloride	ND		
	1	0.26	2-Chloroethyl vinyl Ether	ND		
	0.5	0.14	cis-1,2-Dichloroethene	ND		
	2	0.06	Dichloromethane (Methylene chloride)	ND		
	10	0.16	Naphthalene	ND		
	3	0.15	Methyl-tert-butyl ether (MTBE)	ND		
	5	0.20	Trichlorofluoromethane	ND		
	10	0.16	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		
	0.5	0.11	Styrene	ND		
	0.5	0.34	Xylenes,total	ND		

Report# N294-09

CERTIFICATE OF ANALYSIS

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flags
8260B	1	0.30	Hexachlorobutadiene	ND	µg/L	
	1	0.12	Hexachloroethane	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
1,2-Dichloroethane-d_4	5.00	5.96	119.20	72-132
2-Bromo-1-chloropropane	5.00	5.65	113.00	71-134
4-Bromofluorobenzene	5.00	4.34	86.80	74-132

Mario D'Onofrio
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS
8270C

Report # N294-09

Date: 10/28/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/23/02
Date Completed: 10/25/02

Sample ID: Outfall R1
Lab ID: N310830

Date Sampled: 10/21/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	1	0.2	Phenol	ND	µg/L	
	1	0.2	Bis(2-chloroethyl) Ether	ND		
	2	0.9	2-Chlorophenol	ND		
	10	1.1	Bis(2-chloroisopropyl) Ether	ND		
	5	0.8	N-Nitroso-di-n-propylamine	ND		
	10	1.7	Nitrobenzene	ND		
	1	0.2	Isophorone	ND		
	10	2.3	2-Nitrophenol	ND		
	2	1.0	2,4-Dimethylphenol	ND		
	5	3.3	Bis(2-chloroethoxy)methane	ND		
	1	0.3	2,4-Dichlorophenol	ND		
	5	3.2	4-Chloro-3-methylphenol	ND		
	5	2.6	Hexachlorocyclopentadiene	ND		
	10	1.8	2,4,6-Trichlorophenol	ND		
	10	1.1	2-Chloronaphthalene	ND		
	2	1.0	Dimethyl Phthalate	ND		
	10	1.0	Acenaphthylene	ND		
	1	0.7	Acenaphthene	ND		
	5	3.2	2,4-Dinitrophenol	ND		
	10	4.1	4-Nitrophenol	ND		
	5	3.0	2,4-Dinitrotoluene	ND		
	5	1.4	2,6-Dinitrotoluene	ND		
	2	0.6	Diethylphthalate	ND		
	5	0.8	4-Chloro-phenylphenylether	ND		
	10	0.9	Fluorene	ND		
	10	7.5	4,6-Dinitro-2-methylphenol	ND		
	1	0.9	N-Nitrosodiphenylamine	ND		
	10	1.0	4-Bromophenyl-phenylether	ND		
	1	0.7	Hexachlorobenzene	ND		
	1	0.6	Pentachlorophenol	ND		
	5	0.4	Phenanthrene	ND		
	10	1.2	Anthracene	ND		
	2	0.4	Benzo(b)fluoranthene	ND		

Report # N294-09

CERTIFICATE OF ANALYSIS
8270C

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flags
8270C	10	0.3	Di-n-butylphthalate	ND	µg/L	
	10	0.6	Fluoranthene	ND		
	10	1.3	Pyrene	ND		
	10	1.6	Butylbenzylphthalate	ND		
	5	2.2	3,3'-Dichlorobenzidine	ND		
	5	0.8	Bis(2-ethylhexyl)phthalate	ND		
	5	1.1	Chrysene	ND		
	10	1.3	Di-n-octylphthalate	ND		
	3	2.5	Benzo(k)fluoranthene	ND		
	2	0.9	Benzo(a)pyrene	ND		
	0.5	0.5	Indeno(1,2,3-c,d)pyrene	ND		
	0.4	0.4	Dibenzo(a,h)anthracene	ND		
	5	1.0	Benzo(g,h,i)perylene	ND		
	1	1.0	1,2-Diphenyl hydrazine	ND		
	5	2.5	Benzidine	ND		
	5	2.1	N-Nitrodimethylamine	ND		
	5	2.5	1,2-Benzanthracene	ND		
	5	2.5	Di(2-ethylhexyl) adipate	ND		

Surrogate	Amnt Spiked	Amnt Recovered	% Recovery	QC Limit %
Nitrobenzene-d_5	100	65.93	65.93	35-114
2-Fluorobiphenyl	100	56.10	56.10	43-141
Terphenyl-d_{14}	100	82.98	82.98	33-141
2-fluorophenyl	150	72.78	48.52	21-100
Phenol-d_5	150	46.55	31.03	10-94
2,4,6-Tbromophenol	150	146.90	97.93	10-123

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

8081A

Report # N294-09

Date: 10/28/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/25/02
Date Completed: 10/26/02

Date Sampled: 10/21/02
Time: 9:45am
Sampler : Scott Rohrer

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flags
8081A	0.10	0.09	Alpha-BHC	ND	µg/L	
	0.20	0.11	Gamma-BHC	0.15		DNQ
	0.20	0.11	Heptachlor	ND		
	0.10	0.08	Beta-BHC	ND		
	0.20	0.13	Delta-BHC	ND		
	0.10	0.09	Aldrin	ND		
	0.10	0.10	Heptachlor Epoxide	ND		
	0.10	0.09	Endosulfan 1	ND		
	0.10	0.08	DDE	ND		
	0.10	0.07	Dieldrin	ND		
	0.10	0.09	Endrin	ND		
	0.20	0.13	DDD	ND		
	0.10	0.05	Endosulfan 2	ND		
	0.10	0.08	DDT	ND		
	0.10	0.07	Endrin Aldehyde	ND		
	0.30	0.22	Endosulfan Sulfate	ND		
	10	0.31	Methoxychlor	ND		
	0.50	0.50	Toxaphene	ND		
	0.50	0.50	Chlordane	ND		

DNQ=Estimated Concentration

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
TCMX	0.25	0.26	104.0	63.2-121
DBC	0.50	0.59	118.0	68.2-135

Gregory Merciadis RG
Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

8082

Report # N294-09

Date: 10/29/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/25/02
Date Completed: 10/25/02

Date Sampled: 10/21/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flags
8082	0.5	0.05	Arochlor 1016	ND	µg/L	
	0.5	0.14	Arochlor 1221	ND		
	0.5	0.09	Arochlor 1232	ND		
	0.5	0.06	Arochlor 1242	ND		
	0.5	0.15	Arochlor 1248	ND		
	0.5	0.06	Arochlor 1254	ND		
	0.5	0.22	Arochlor 1260	ND		

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

504.1

Report # N294-09

Date: 10/28/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/25/02
Date Completed: 10/25/02

Date Sampled: 10/21/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flags
504.1	0.01	0.005	(DBCP)1,2-Dibromo-3-Chloropropane	ND	µg/L	
	0.02	0.012	(EDB) Ethylene dibromide	ND		

Gregory Merciadis

Donna Keller

GeoAnalytical Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

507

port # N294-09

Date: 10/29/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/25/02
Date Completed: 10/28/02

Date Sampled: 10/21/02
Time:
Sampler : Scott Rohrer

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flags
507	1	0.06	Atrazine (AATREX)	ND	µg/L	
	2	0.11	Molinate(ORDRAM)	ND		
	4	0.15	Simazine (PRINCEP)	ND		
	1	0.66	Alachlor	ND		
	0.25	0.05	Diazinon	ND		
	1	0.01	Chlorpyrifos	ND		
	1	0.15	Thiobencarb (Bolero)	ND		
	0.25	0.05	Diazinon	ND		
	10.0	0.13	Dimethoate (CYGON)	ND		
	10.0	0.20	Metolachlor	ND		
	2.0	0.18	Prometryn (CAPAROL)	ND		
	0.5	0.44	Propachlor	ND		
	1.0	0.17	Metribuzin	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Vernolate	5.00	5.89	117.8	70-130

Gregory Merciadis

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

515.1

Report # N294-09

Date: 10/25/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/24/02
Date Completed: 10/24/02

Sample ID: Outfall R1
Lab ID: N310830

Date Sampled: 10/21/02
Time:
Sampler : Scott Rohrer

Method	RL	MDL	Analyte	Results	Units	Flags
515.1	2	0.46	Bentazon (BASAGRAN)	ND	µg/L	
	10	0.97	2,4-D	ND		
	1	0.51	2,4,5-TP (Silvex)	ND		
	10	0.08	Dalapon	ND		
	2	0.27	Dinoseb (DNBP)	ND		
	1	0.19	Picloram	ND		
	1.0	0.19	Picloram	ND		
	1.5	0.01	Dicamba (BANVEL)	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
DCAA	5.00	5.23	104.6	68-120

Gregory Merciadis
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N294-09

Date: 10/30/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/22/02
Date Completed: 10/28/02

Date Sampled: 10/21/02
Time: 9:45am
Sampler: Scott Rohrer

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flag
200.8	20	9.8	Manganese	11	µg/L	DNQ
200.8	5	0.12	Nickel	ND	µg/L	
200.8	5	3.2	Selenium	ND	µg/L	
200.8	1	0.1	Silver	ND	µg/L	
200.8	1	0.9	Thallium	ND	µg/L	
200.8	10	2	Zinc	12	µg/L	
200.8	50	18	Aluminum	369	µg/L	
200.8	5	3	Antimony	ND	µg/L	
200.8	5.0	4	Arsenic	ND	µg/L	
200.8	100	13	Barium	56	µg/L	DNQ
200.8	1	0.8	Beryllium	ND	µg/L	
200.8	0.25	0.16	Cadmium	ND	µg/L	
200.8	2	1.5	Chromium	ND	µg/L	
200.7	100	4	Iron	85	µg/L	DNQ
200.8	0.5	0.2	Lead	ND	µg/L	
200.8	0.5	0.13	Copper	ND	µg/L	

Rohit Bombaywala

Donna Keller

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # N294-09

Date: 11/12/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/21/02
Date Completed: 10/30/02

Date Sampled: 10/21/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flag
9014	5	5	Cyanide	ND	µg/L	
350.2	1000	500	Ammonia as N	ND	µg/L	
300.0	1000	100	Chloride	15000	µg/L	
200.7	1000	1000	Hardness as $CaCO_3$	86000	µg/L	
SM5540C	50	28	MBAS	ND	µg/L	
300.0	2000	280	Nitrate as N	5600	µg/L	
300.0	400	380	Nitrite as N	ND	µg/L	
150.1	NA	NA	pH	7.5	Std.Units	
365.2	10	10	Total Phosphorous	90	µg/L	
120.1	1.0	0.76	Electro Conductivity (EC)	296	µmhos/cm	
300.0	500	260	Sulfate	14000	µg/L	
376.1	1000	900	Sulfide	ND	µg/L	
377.1	5000	3500	Sulfite	ND	µg/L	
160.1	10000	5000	TDS (Filterable Residue)	186000	µg/L	
300.0	100	20	Fluoride	ND	µg/L	
218.6	0.5	0.08	Chrome VI	ND	µg/L	

Rohit Bombaywala

Donna Keller

GeoAnalytical Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

Report # N294-09

Date: 10/30/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Quarterly Priority Pollutants-Outfall

PO#

Date Rec'd: 10/21/02
Date Started: 10/22/02
Date Completed: 10/28/02

Date Sampled: 10/21/02
Time:
Sampler: Scott Rohrer

Sample ID: Outfall R1
Lab ID: N310830

Method	RL	MDL	Analyte	Results	Units	Flag
200.8	0.5	0.13	Dissolved Copper	ND	µg/L	

Rohit Bombaywala
Rohit Bombaywala
Supervisor

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

622

) port # N296-22

Date: 10/31/02

City of Turlock
901 S. Walnut
Turlock CA 95380

Project: Wastewater and Outfall Samples

PO#

Date Rec'd: 10/23/02
Date Started: 10/29/02
Date Completed: 10/30/02

Date Sampled: 10/23/02
Time:
Sampler : Pete Gallegos

Sample ID: Outfall R1
Lab ID: N310928

Method	RL	MDL	Analyte	Results	Units	Flags
622	0.08	0.02	Diazinon	ND	µg/L	
	0.08	0.01	Chlorpyriphos	ND		

Surrogate	Amnt Spiked	Amnt Rec.	% Recovery	QC Limit %
Tributyl Phosphate	5.00	4.03	80.6	60-130

Gregory Merciadis

Certification # 1157

Donna Keller
Laboratory Director

Date: 01-Nov-02
WorkOrder: 0210569

ANALYTICAL REPORT

Client Sample ID: Outfall R1 Received: 10/22/02 Collected: 10/21/02 9:45
Lab ID: 0210569-01D

Test Name: Diquat Reference: EPA 549.2

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Diquat	ND	0.40	µg/L	1.0	10/25/02	10/30/02

Client Sample ID: Outfall R2 Received: 10/22/02 Collected: 10/21/02 10:00
Lab ID: 0210569-02A

Test Name: Carbamate & Urea Pesticides Reference: EPA 632

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Methomyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fenuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Monuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propoxur	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbofuran	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbaryl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fluometuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Diuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propham	ND	10	µg/L	1.0	10/23/02	10/29/02
Siduron	ND	10	µg/L	1.0	10/23/02	10/29/02
Methiocarb	ND	10	µg/L	1.0	10/23/02	10/29/02
Linuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Swep	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Chlorpropham	ND	10	µg/L	1.0	10/23/02	10/29/02
Barbane	ND	10	µg/L	1.0	10/23/02	10/29/02
Neburon	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Surrogate: Simazine	85.3	57.8-109	% Rec	1.0	10/23/02	10/29/02

Client Sample ID: Outfall R2 Received: 10/22/02 Collected: 10/21/02 10:00
Lab ID: 0210569-02B

Test Name: Glyphosate Reference: EPA 547

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Glyphosate	ND	5.0	µg/L	1.0		10/25/02

Date: 01-Nov-02
WorkOrder: 0210569

ANALYTICAL REPORT

Client Sample ID: Outfall R2 — Received: 10/22/02 — Collected: 10/21/02 10:00
Lab ID: 0210569-02C

Test Name: Endothall — Reference: EPA 548.1

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Endothall	ND	45	µg/L	1.0	10/28/02	10/30/02
Surrogate: 2,3-D	102	70-130	% Rec	1.0	10/28/02	10/30/02

Client Sample ID: Outfall R2 — Received: 10/22/02 — Collected: 10/21/02 10:00
Lab ID: 0210569-02D

Test Name: Diquat — Reference: EPA 549.2

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Diquat	ND	0.40	µg/L	1.0	10/25/02	10/30/02

Client Sample ID: Outfall R2 — Received: 10/22/02 — Collected: 10/21/02 10:40
Lab ID: 0210569-03A

Test Name: Carbamate & Urea Pesticides — Reference: EPA 632

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Oxamyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Methomyl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fenuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Monuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propoxur	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbofuran	ND	10	µg/L	1.0	10/23/02	10/29/02
Carbaryl	ND	10	µg/L	1.0	10/23/02	10/29/02
Fluometuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Diuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Propham	ND	10	µg/L	1.0	10/23/02	10/29/02
Siduron	ND	10	µg/L	1.0	10/23/02	10/29/02
Methiocarb	ND	10	µg/L	1.0	10/23/02	10/29/02
Linuron	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Swep	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Chlorpropham	ND	10	µg/L	1.0	10/23/02	10/29/02
Barbane	ND	10	µg/L	1.0	10/23/02	10/29/02
Neburon	ND	4.0	µg/L	1.0	10/23/02	10/29/02
Surrogate: Simazine	77.4	57.8-109	% Rec	1.0	10/23/02	10/29/02

NORTH COAST LABORATORIES
5680 West End Road · Arcata, California 95521 · 707-822-4649 · FAX 707-822-6831

City of Turlock
NPDES Discharge # CA0078948
SIP REQUIREMENTS R1: (Latitude 120.56.13 : Longitude 37.27.80)
R1 - Grab samples

			Sample Date		11/6/02	11/6/02	11/6/02	11/6/02	11/6/02	10/23/02	10/21/02	10/21/02	10/21/02	10/21/02	10/21/02	7/15/02	6/10/02	3/25/02
			Report Number		N310-14	N310-13	N310-15	N310-16	N310-18	N296-22	N294-07	N294-08	N294-06	N294-09	N294-05	N198-18	N161-12	N084-07
			Analyte	cas#	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Method #	RL	Units																
200.7/ 200.8	100	ug/L	Aluminum (Total)	7429905			395							369			340	
200.8	5.0	ug/L	Antimony	7440360			ND							ND			ND	
200.8	1.0	ug/L	Arsenic	7440382					ND								1.3	
200.8/ 1632	0.2	MFL	Asbestos	132214		0					0						0	
600/R-94/134-(100.2)	100	ug/L	Barium	7440393			20							56			56	
200.8	1.0	ug/L	Beryllium	7440417			ND							ND			ND	
200.8	0.25	ug/L	Cadmium	7440439			ND							ND			ND	
200.8	2	ug/L	Chromium	7440473			2.4							ND			ND	
200.8	0.5	ug/L	Chromium VI	18540299										ND			2.5	
218.16	0.5	ug/L	Copper (Total)	7440508			1.9		1					ND			ND	
200.8	0.01	mg/L	Cyanide (Total)	57125					ND					ND				
335.2	100	ug/L	Fluoride	7782414					ND					85			200	
300	100	ug/L	Iron (Total)	7439896			286		.246					ND			ND	
200.7	0.5	ug/L	Lead	7439921			ND							ND			ND	
200.8	20	ug/L	Manganese (Total)	7439965			ND		3.8						2.75		ND	
200.8	0.2	ng/L	Mercury- (low level)	7439976				2.23						ND			ND	
1631	5	ug/L	Nickel	7440020			0.8							ND			ND	
200.8	5	ug/L	Selenium	7782492			ND							ND			ND	
200.8	1	ug/L	Silver	7440224			ND							ND			ND	
200.8	1	ug/L	Thallium	7440280			ND									2		
200.8	2	ng/L	Tributyltin	688733	ND								ND					
EV-024/025	10	ug/L	Zinc (Total)	7440666			6		1.1					12			3	
200.8	1	mg/L	Hardness (as CaCO3)						26000					86			98.1	
200.7	NA	F	Temperature						55	63				63		68	70	59
NA	NA	CFS	Flow						21	32				11		19	26	4
NA	10000	ug/L	TDS(Filterable Residue)						ND					186000			290000	
160.1	NA	Std. Units	pH						7.9					7.5			7.8	
150.1	10	ug/L	Total Phosphorous	7723140					60					90			ND	
365.2	500	ug/L	Sulfate						3300					14000			13000	
300	1000	ug/L	Sulfide as S						ND					ND			ND	
376.1	2000	ug/L	Sulfite as SO3						ND					ND			ND	
377.1	1	umhos/cm	Electrical Cond (EC)						80					296			324	
120.1	500	ug/L	Ammonia as N											ND			ND	
350.2	2000	ug/L	Nitrates (NO3- N)	14797558					7000					5600			6100	
300.0	400	ug/L	Nitrites (NO2- N)	14797650					ND					ND			ND	
300.0	1000	ug/L	Chloride	16887006					2300					15000			14000	
300	0.05	mg/L	MBAS						ND					ND			ND	
425.1	0.25	ug/L	Diazinon	333415						ND				ND			ND	ND
622	1	ug/L	Chlorpyriphos	2921882						ND				ND			ND	ND
622	1 / 0.5	ug/L	Bromodichloromethane	75274					ND					ND			ND	
8260B	0.5	ug/L	Bromoform	75252					ND					ND			ND	
8260B	0.5	ug/L	Chloroform	67663					ND					ND			ND	
8260B	0.5	ug/L	Dibromochloromethane	124481					ND					ND			ND	
8260B	0.5	ug/L	Benzene	71432					ND					ND			ND	
8260B	0.5	ug/L	Carbon Tetrachloride	56235					ND					ND			ND	
8260B	1	ug/L	1,2-Dichlorobenzene	95501					ND					ND			ND	
8260B	1	ug/L	1,4-Dichlorobenzene	106467					ND					ND			ND	
8260B	0.5	ug/L	1,1-Dichloroethane	75343					ND					ND			ND	
8260B	0.5	ug/L	1,2-Dichloroethane (1,2-DCA)	107062					ND					ND			ND	
8260B	0.5	ug/L	1,1-Dichloroethylene	75354					ND					ND			ND	
8260B	0.5	ug/L	cis-1,2-Dichloroethylene	156592					ND					ND			ND	
8260B	1	ug/L	trans-1,2-Dichloroethylene	156605					ND					ND			ND	
8260B	4	ug/L	Dichloromethane	75092					ND					ND			ND	
8260B	0.5	ug/L	1,2-Dichloropropane	78875					ND					ND			ND	
8260B	0.5	ug/L	Total 1,3-Dichloropropene	542756					ND					ND			ND	
8260B	1	ug/L	Ethyl Benzene	100414					ND					ND			ND	
8260B	1	ug/L	Monochlorobenzene	108907					ND					ND			ND	
8260B	0.5	ug/L	Styrene	100425					ND					ND			ND	
8260B	0.5	ug/L	1,1,2,2-Tetrachloroethane	79345					ND					ND			ND	
8260B	0.5	ug/L	Tetrachloroethylene (PCE)	127184					ND					ND			ND	
8260B	1	ug/L	Toluene	108883					ND					ND			ND	
8260B	1	ug/L	1,2,4-Trichlorobenzene	120821					ND					ND			ND	
8260B	1	ug/L	1,1,1-Trichloroethane	71556					ND					ND			ND	
8260B	0.5	ug/L	1,1,2-Trichloroethane	79005					ND					ND			ND	
8260B	1	ug/L	Trichloroethylene	79061					ND					ND			ND	
8260B	1	ug/L	Trichlorofluoromethane	75694					ND					ND			ND	
8260B	0.5	ug/L	Vinyl Chloride	75014					ND					ND			ND	
8260B	1	ug/L	m,p-Xylene						ND					ND			ND	
8260B	1	ug/L	o-Xylene						ND					ND			ND	
8260B	1	ug/L	Bromomethane	74839					ND					ND			ND	
8260B	1	ug/L	Chloroethane	75003					ND					ND			ND	
8260B	1	ug/L	2-Chloroethylvinyl Ether	110758					ND					ND			ND	
8260B	1	ug/L	Chloromethane	74873					ND					ND			ND	
8260B	1	ug/L	1,3-Dichlorobenzene	541731					ND					ND			ND	
8260B	0.5	ug/L	1,3-Dichloropropane	542756					ND					ND			ND	
8260B	0.5	ug/L	1,2-Dichloropropene						ND					ND			ND	
8260B	1	ug/L	Hexachlorobutadiene	87683					ND					ND			ND	
8260B	1	ug/L	Hexachloroethane	67721					ND					ND			ND	
8260B	1	ug/L	Isopropylbenzene						ND					ND			ND	
8260B	1	ug/L	Methyl tert-Butyl Ether (MTBE)	1634044					ND					ND			ND	
8260B	20	ug/L	Acrolein	107028					ND					ND			ND	
8260B	2	ug/L	Acrylonitrile	107131					ND					ND			ND	
8260B	10	ug/L	Naphthalene	91203					ND					ND			ND	
8260B	10	ug/L	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131										ND			ND	
8081A	0.1	ug/L	Alpha-BHC	319846										ND			ND	
8081A	0.1	ug/L	Gamma-BHC	58899										ND			ND	
8081A	0.1	ug/L	Heptachlor	76448										ND			ND	
8081A	0.1	ug/L	Beta-BHC	319857										ND			ND	
8081A	0.1	ug/L	Delta-BHC	319868										ND			ND	
8081A	0.1	ug/L	Aldrin	309002										ND			ND	
8081A	0.1	ug/L	Heptachlor Epoxide	1024573										ND			ND	
8081A	0.5	ug/L	Endosulfan 1	959988										ND			ND	
8081A	0.1	ug/L	DDE	72559										ND			ND	
8081A	0.1	ug/L	Dieldrin	60571										ND			ND	
8081A	0.1	ug/L	Endrin	72208										ND			ND	
8081A	0.5	ug/L	DDD	72548										ND			ND	
8081A	0.5	ug/L	Endosulfan 2	33213659										ND			ND	
8081A	0.5	ug/L	DDT	50293										ND			ND	
8081A	0.5	ug/L	Endrin Aldehyde	7421934										ND			ND	
8081A	1.0	ug/L	Endosulfan Sulfate	1031078										ND			ND	
8081A	1.0	ug/L	Methoxychlor	72435										ND			ND	
8081A	1.0	ug/L	Toxaphene	8001352										ND			ND	
8081A	1.0	ug/L	Chlordane	57749										ND			ND	
8081A	0.01	ug/L	(DBCP)1,2-Dibromo-e-Chloroprop	96128										ND			ND	
504.1	0.02	ug/L	(EDB) Ethylene dibromide	106934										ND			ND	
504.1	2	ug/L	Phenol	108952										ND			ND	
8270C	2	ug/L	Bis(2-chloroethyl) Ether	111444										ND			ND	
8270C	2	ug/L	2-Chlorophenol	95578										ND			ND	
8270C	2	ug/L	Bis(2-chloroisopropyl) Ether	39638329										ND			ND	
8270C	10	ug/L	N-Nitroso-di-n-propylamine	621647										ND			ND	
8270C	5	ug/L	Nitrobenzene	98953										ND			ND	
8270C	10	ug/L	Isophorone	78591										ND			ND	
8270C	2	ug/L	2-Nitrophenol	25154557										ND			ND	
8270C	10	ug/L	2,4-Dimethylphenol	105679										ND			ND	
8270C	2	ug/L	Bis(2chloroethoxy)methane	111911										ND			ND	
8270C	5	ug/L	2,4-Dichlorophenol	120832										ND			ND	
8270C	2	ug/L	4-Chloro-3-methylphenol	59507										ND			ND	
8270C	5	ug/L	Hexachlorocyclopentadiene	77474										ND			ND	
8270C	5	ug/L	2,4,6-Trichlorophenol	88062										ND			ND	
8270C	10	ug/L	2-Chloronaphthalene	91587										ND			ND	
8270C	10	ug/L	Dimethyl Phthalate	131113										ND			ND	
8270C	2	ug/L	Acenaphthylene	208968										ND			ND	
8270C	10	ug/L	Acenaphthene	83329										ND			ND	
8270C	1	ug/L	2,4-Dinitrophenol	51285										ND			ND	
8270C	5	ug/L	4-Nitrophenol	100027										ND			ND	
8270C	10	ug/L	2,4-Dinitrotoluene	121142										ND			ND	
8270C	5	ug/L	2,6-Dinitrotoluene	606202										ND			ND	
8270C	5	ug/L	Diethylphthalate	84662										ND			ND	
8270C	2	ug/L	4-Chloro-phenylphenylether	7005723										ND			ND	
8270C	5	ug/L	Fluorene	86737										ND			ND	
8270C	10	ug/L	4,6-Dinitro-2-methylphenol	534521										ND			ND	
8270C	10	ug/L	N-Nitrosodiphenylamine	86306										ND			ND	
8270C	1	ug/L	4-Bromophenyl-phenylether	101553										ND			ND	
8270C	10	ug/L	Hexachlorobenzene	118741										ND			ND	
8270C	1	ug/L	Pentachlorophenol	87865										ND			ND	
8270C	10	ug/L	Phenanthrene	85018										ND			ND	
8270C	5	ug/L	Anthracene	120127										ND			ND	
8270C	10	ug/L	Di-n-butylphthalate	84742										ND			ND	
8270C	10	ug/L	Fluoranthene	206440										ND			ND	
8270C	10	ug/L	Pyrene	129000														

														ND			ND
8270C	10	ug/L	Butylbenzylphthalate	85687										ND			ND
8270C	5	ug/L	3,3'-Dichlorobenzidine	91941										ND			ND
8270C	5	ug/L	Bis(2-ethylhexyl)phthalate	117817										ND			ND
8270C	5	ug/L	Chrysene	218019										ND			ND
8270C	10	ug/L	Di-n-octylphthalate	117840										ND			ND
8270C	3	ug/L	Benzo(k)fluoranthene	207089										ND			ND
8270C	2	ug/L	Benzo(a)pyrene	50328										ND			ND
8270C	2	ug/L	Indeno(1,2,3-c,d)pyrene	193395										ND			ND
8270C	2	ug/L	Dibenzo(a,h)anthracene	53703										ND			ND
8270C	5	ug/L	Benzo(g,h,i)perylene	191242										ND			ND
8270C	1	ug/L	1,2-Diphenyl hydrazine	122667										ND			ND
8270C	5	ug/L	Benzidine	92875										ND			ND
8270C	5	ug/L	N-Nitrodimethylamine	62759										ND			ND
8270C	5	ug/L	1,2-Benzanthracene	56553										ND			ND
8270C	5	ug/L	Di(2-ethylhexyl) adipate	103231													
8270C	10	ug/L	3,4-Benzofluoranthene	205992										ND			ND
8082	0.5	ug/L	Arochlor 1016	12674112										ND			ND
8082	0.5	ug/L	Arochlor 1221	11104282										ND			ND
8082	0.5	ug/L	Arochlor 1232	11141165										ND			ND
8082	0.5	ug/L	Arochlor 1242	53469219										ND			ND
8082	0.5	ug/L	Arochlor 1248	12672296										ND			ND
8082	0.5	ug/L	Arochlor 1254	11097691										ND			ND
8082	0.5	ug/L	Arochlor 1260	11096825										ND			ND
507	1	ug/L	Atrazine (AATREX)	1912249										ND			ND
507	2	ug/L	Molinate (ORDRAM)	2212671										ND			ND
507	4	ug/L	Simazine (PRINCEP)	122349													
507	1	ug/L	Thiobencarb	28249776										ND			ND
507	1	ug/L	Alachlor	15972608										ND			ND
515.1	2	ug/L	Bentazone (BASAGRAN)	25057890										ND			ND
515.1	10	ug/L	2,4-D	94757										ND			ND
515.1	1	ug/L	2,4,5-TP (Silvex)	93765										10			10
515.1	10	ug/L	Dalapon	75990										ND			ND
515.1	2	ug/L	Dinoseb (DNBP)	88857										ND			ND
515.1	1	ug/L	Picloram	1918021									ND				ND
532	10	ug/L	Oxamyl	23135220									ND				ND
532	10	ug/L	Carbofuran	1563662									ND				ND
547	5	ug/L	Glyphosate	1071836									ND				ND
549.2	0.4	ug/L	Diquat	85007									ND				ND
548.1	45	ug/L	Endothal	145733										ND			ND
SW846 8290	5	pg/l	2,3,7,8-TCDD	1746016										ND			ND
SW846 8290		pg/l	1,2,3,7,8-PeCDD											ND			ND
SW846 8290		pg/l	1,2,3,4,7,8-HxCDD											ND			ND
SW846 8290		pg/l	1,2,3,6,7,8-HxCDD											ND			ND
SW846 8290		pg/l	1,2,3,7,8,9-HxCDD											ND			ND
SW846 8290		pg/l	1,2,3,4,6,7,8-HpCDD											ND			ND
SW846 8290		pg/l	OCDD											ND			ND
SW846 8290		pg/l	2,3,7,8-TCDF											ND			ND
SW846 8290		pg/l	1,2,3,7,8-PeCDF											ND			ND
SW846 8290		pg/l	2,3,4,7,8-PeCDF											ND			ND
SW846 8290		pg/l	1,2,3,4,7,8-HxCDF											ND			ND
SW846 8290		pg/l	1,2,3,6,7,8-HxCDF											ND			ND
SW846 8290		pg/l	2,3,4,6,7,8-HxCDF											ND			ND
SW846 8290		pg/l	1,2,3,7,8,9-HxCDF											ND			ND
SW846 8290		pg/l	1,2,3,4,6,7,8-HpCDF											ND			ND
SW846 8290		pg/l	1,2,3,4,7,8,9-HpCDFOCDF											ND			ND
SW846 8290		pg/l	OCDF														

APPENDIX E

VASCULAR PLANT LIST

APPENDIX E

VASCULAR PLANT LIST

The "Likelihood for Project to Impact" category is defined as follows:

Unlikely: The project site and/or immediate area do not support suitable habitat for a particular species. Project site is outside of the species known range.

Low: The project site and/or immediate area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the project area.

Medium: The project site and/or immediate area provide suitable habitat for a particular species.

High: The project site and/or immediate area provide ideal habitat conditions for a particular species.

Species that have medium or high potential to be impacted by the proposed project are shown in **boldface** type.

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential for Impact	Period of Identification/ Blooming Period
Plants				
Astragalus tener var. ***tener*** **Alkali milk-vetch**	FSC/--/1B	Playas, valley and foothill grassland and vernal pools; often on alkaline soils.	**Medium.** Potential habitat occurs in the project area along the San Joaquin River Levee and old floodplain which is dominated by alkaline soil.	March-June
Atriplex cordulata **Heartscale**	--/CSC/ 1B	Valley foothill grasslands on alkaline sandy soils.	**Medium.** Potential habitat occurs in the project area along the San Joaquin River Levee and old floodplain which is dominated by alkaline-sandy soil.	May-October
Atriplex depressa **Brittlescale**	FSC/--/ 1B	Alkaline or clay grasslands, chenopod scrub, and playas.	**Medium.** Potential habitat occurs in the project area along the San Joaquin River Levee and old floodplain which is dominated by alkaline-sandy soil. Species was identified in the project area.	May-October
Atriplex joaquiniana **San Joaquin spearscale**	FSC/--/ 1B	Chenopod scrub, meadows and seeps, playas and valley and foothill grassland; typically with alkaline soils.	**Medium.** Potential habitat occurs in the project area along the San Joaquin River Levee and old floodplain which is dominated by alkaline soil.	April-October

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Potential for Impact	Period of Identification/ Blooming Period
Plants				
Atriplex persistens Vernal pool smallscale	FSC/--/1B	Found in alkaline vernal pools.	Unlikely. No vernal pool habitats exist in the project area	April-October
Blepharizonia plumosa ssp. *plumosa* Big tarplant	FSC/--/1B	Valley and foothill grassland.	Low. Minimal potential habitat exists within the project area.	July-October
Caulanthus coulteri var. *lemmonii* Lemmon's jewelflower	FSC/--/1B	Pinyon and juniper woodland, and valley and foothill grassland.	Low. Minimal potential habitat exists within the project area.	March-May
***Cirsium crassicaule* Slough thistle**	FSC/--/ 1B	Chenopod scrub, marshes, swamps, and riparian scrub.	**Medium.** Potential habitat occurs in the project area along the San Joaquin River Levee and old floodplain, which is dominated by alkaline-sandy soil.	May-August
Cordylanthus mollis ssp. *hispidus* Hispid bird's-beak	FSC/--/1B	Meadows and seeps, playas, and valley and foothill grassland with alkaline soils.	Low. Minimal potential habitat exists within the project area.	June-September
***Eleocharis quadrangulata* Four-angled spikerush**	--/--/2	Marshes and swamps.	**Medium**. Potential habitat occurs in the project area along the San Joaquin River.	May-September
Erodium macrophyllum Round-leaved filaree	--/--/2	Cismontane woodland, and valley and foothill grassland in clay soils.	Low. Minimal potential habitat exists within the project area.	March-May
***Eryngium racemosum* Delta button-celery**	FSC/CE/1B	Occurs in clay soil under vernally moist conditions in riparian habitats (riparian scrub).	**High.** Potential habitat exists within the project area. Species was identified in the project area.	April-October
Eschscholzia rhombipetala Diamond-petaled California poppy	FSC/--/1B	Valley and foothill grassland in alkaline, clay soils.	Low. Minimal potential habitat exists within the project area.	March-April
Monardella leucocephala Merced monardella	FSC/--/1A	Valley and foothill grassland habitats. Requires moist sub alkaline sands associated with low elevation grassland.	Low. Minimal potential habitat exists within the project area.	April-October
Myosurus minimus ssp. *apus* Little mousetail	FSC/--/3	Occurs in alkaline soils in vernal pool habitats.	Unlikely. No vernal pool habitats exist within the project area.	May-August
Navarretia prostrata Prostrate navarretia	FSC/--/1B	Coastal scrub, valley and foothill grassland, and vernal pools.	Low. Minimal potential habitat exists within the project area.	April-July
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT/CE/1B	Vernal pools.	Unlikely. No vernal pools exist in the project area.	April-September
***Sagittaria sanfordii* Sanford's arrowhead**	FSC/--/1B	Marshes and swamps.	**Medium**. Potential habitat occurs in the project area along the San Joaquin River.	May-October

United States Fish and Wildlife Service classifications:

FE = Species in danger of extinction throughout all or significant portion of it's range.
FT = Species likely to become endangered within foreseeable future throughout all or significant portion of its range.
FP = Species proposed endangered.
FC = Candidate information now available indicates that listing may be appropriate with supporting data currently on file.
FSC = Species of special concern.
FPD = Species proposed for delisting.
FD = Species delisted, but being monitored.
FLC = Species of local concern.

California Department of Fish and Game classifications:

CE = State listed as endangered. Species who's continued existence in California is jeopardized.
CT = State listed as threatened. Species, although not presently threatened with extinction, may become endangered in the foreseeable future.
CR = State listed as rare. Plant species, although not presently threatened with extinction, may become endangered in the foreseeable future.
CSC = California species of special concern. Animal species with California breeding populations that may face extinction in the near future.
CP = Fully protected by the State of California under Section 3511 and 4700 of the CDFG Code.

California Native Plant Society List classifications:

1A = Plants that are presumed extinct in California.
1B = Plants that are Rare, Threatened, or Endangered in California and elsewhere.
2 = Plants that are Rare, Threatened or Endangered in California but more common elsewhere.
3 = Plants for which more information is needed.
4 = Plants of limited distribution.

SOURCES: CDFG, 2003; CNPS, 2003; USFWS, 2003

APPENDIX F

LIST OF SPECIAL STATUS SPECIES

APPENDIX F

SPECIAL-STATUS SPECIES THAT MAY OCCUR IN THE STUDY AREA

The "Likelihood to Occur" category is defined as follows:

Unlikely: The project site and/or immediate area do not support suitable habitat for a particular species. Project site is outside of the species known range.

Low: The project site and/or immediate area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the project area.

Medium: The project site and/or immediate area provide suitable habitat for a particular species.

High: The project site and/or immediate area provide ideal habitat conditions for a particular species.

Species that have medium or high potential to be impacted by the proposed project are shown in **boldface** type.

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Likelihood to Occur	Period of Identification/ Blooming Period
LISTED AND PROPOSED SPECIES				
Invertebrates				
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pools and seasonal wetlands.	Unlikely. No vernal pool habitats exist in the project area.	Year round (eggs in dry season, adults in wet season)
Branchinecta mesovallensis Midvalley fairy shrimp	FSC/--/--	Life cycle restricted to vernal pools in the Central Valley.	Unlikely. No vernal pool habitats exist in the project area.	Year round (eggs in dry season, adults in wet season)
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--/--	Occurs in the Central Valley region in association with blue elderberry shrubs. Prefers to lay eggs in elderberry stems greater than 1" in diameter.	Low. No potential habitat for this species was located during the field survey.	Year round (exit holes in shrub stems)
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Vernal pools and swales in the Sacramento Valley.	Unlikely. No vernal pool habitats exist in the project area.	Year round

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Likelihood to Occur	Period of Identification/ Blooming Period
Linderiella occidentalis California linderiella	FSC/--/--	Lifecycle restricted to vernal pools.	Unlikely. No vernal pool habitats exist in the project area.	Year round
Lytta moesta Moestan blister beetle	FSC/--/--	Occurs in vernal pools and seasonal wetlands.	Unlikely. No identified vernal pool habitat within project vicinity.	July-August
Fish				
Acipenser medirostris Green sturgeon	FSC/CSC/--	Occurs in Sacramento-San Joaquin Rivers and Delta; prefer to spawn in large cobble; eggs fertilized in relatively high water velocities.	Low. No in stream work proposed with construction of outfall. Limited spawning habitat in project area.	Year round
Hypomesus transpacificus Delta smelt	FT/CT/--	Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	Low. Water quality from the proposed outfall may impact species. However BMP's will reduce potential water quality concerns.	December to June
Lampetra ayresi River lamprey	FSC/CSC/--	Spawning requires clean, gravelly riffles in permanent streams; ammocoetes require sandy backwaters or stream edges in which to bury themselves.	Low. BMP's and seasonal restrictions for in water construction will reduce potential impacts.	Year round
Lampetra hubbsi Kern brook lamprey	FSC/CSC/--	Commonly occupy sand, gravel, and rubble; ammocoetes favor sand/mud substrate; adults favor coarser gravel-rubble substrate for spawning.	Low. BMP's and seasonal restrictions for in water construction will reduce potential impacts.	Year round
Lampetra tridentata Pacific lamprey	FSC/--/--	Commonly occupy sand, gravel, and rubble; ammocoetes favor sand/mud substrate; adults favor coarser gravel-rubble substrate for spawning.	Low. BMP's and seasonal restrictions for in water construction will reduce potential impacts.	Year round
Oncorhynchus mykiss Central Valley steelhead	FT/--/--	Spawns in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Federal listing includes all runs in coastal basins from the Russian River, south to Soquel Creek, inclusive. Includes the San Francisco and San Pablo Bay basins, but excludes the Sacramento-San Joaquin River basins.	Low. Potential water quality concerns from the proposed outfall. However, BMP's and seasonal restrictions for in water construction will reduce potential impacts.	Winter months
Oncorhynchus tshawytscha Central Valley spring-run chinook salmon	FT/CT/--	Formerly found in the San Joaquin, American, Yuba, Feather, upper Sacramento, McCloud, and Pit Rivers. Now limited to the Sacramento River.	Unlikely. Project area is outside of present known range. Water quality impact unlikely.	February-June

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Likelihood to Occur	Period of Identification/ Blooming Period
Onchorhynchus tshawytscha Fall-run chinook salmon	FC/CSC/--	Spawning in Sacramento and San Joaquin Rivers and associated tributaries.	Low. Potential water quality concerns from the proposed outfall. However, BMP's and seasonal restrictions for in water construction will reduce potential impacts.	September-May
Oncorhynchus tshawytscha Winter-run chinook salmon	FE/CE/--	Juveniles spend five to nine months in the Sacramento River and Sacramento-San Joaquin Estuary before entering the ocean.	Low. Water quality impact is unlikely.	
Pogonichthys macrolepidotus Sacramento Splittail	FT/CSC/--	Prefers backwaters and sloughs of the Delta and lower San Joaquin and Sacramento rivers.	Low. Potential water quality concerns from the proposed outfall. However, BMP's and seasonal restrictions for in water construction will reduce potential impacts.	January to June
Spirinchus thaleichthys Longfin smelt	FSC/CSC/--	Occupy middle/bottom of the water column in salt or brackish water; spawn in rivers and dead-end sloughs in fresh water, over sandy-gravel substrates, rocks, and aquatic plants.	Low. Limited habitat in project vicinity.	Year round
Reptiles				
Anniella pulchra pulchra Silvery legless lizard	FSC/CSC/--	Forages at the base of vegetation either on the surface, or in burrows near the surface through loose soil.	Low. Limited habitat within project area.	Year round, excluding winter
Clemmys marmorata marmorata **Northwestern pond turtle**	FSC/CSC/--	Rivers and streams with some canopy cover.	**Medium.** Suitable habitat within ditch areas and along SJ River.	Year round, excluding winter
Clemmys marmorata pallida **Southwestern pond turtle**	FSC/CSC/--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and sandy banks or open grassy fields for egg-laying.	**Medium.** Suitable habitat within ditch areas and along SJ River.	Year round
Gambelia sila Blunt-nosed leopard lizard	FE/CE/--	Occurs in open, valley and foothill grasslands, valley saltbush scrub, and alkali playa communities of the San Joaquin Valley, Carrizo Plain, and Cuyama Valley. Uses small mammal burrows for refuge.	Low. Minimal suitable habitat in the immediate project area.	Year round, excluding winter
Masticophis flagellum ruddocki **San Joaquin whipsnake**	FSC/CSC/--	Open, dry habitats with minimal or no tree cover. Inhabits valley grassland and saltbrush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and egg-laying sites.	**Medium.** Suitable habitat along the SJ River levee area.	March-October

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Likelihood to Occur	Period of Identification/ Blooming Period
Phrynosoma coronatum frontale California horned lizard	FSC/CSC/--	Inhabits variety of habitats, usually lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial. Must have abundant ants and other insects.	Low. Limited suitable habitat on east shore of SJ River where outfall footprint is proposed	March-October
***Thamnophis gigas* Giant garter snake**	FT/CT/--	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields which have water from early spring through mid-fall, emergent vegetation (such as cattails and bulrushes), open areas for sunning, and high ground for hibernation and escape cover.	**Medium**. Suitable habitat exists within the project area near agricultural lands and ditches.	March-October
Amphibians				
Ambystoma californiense California tiger salamander	FP/CSC/--	Annual grasslands and grassy understory of hardwood habitats; need underground refuges (i.e., ground squirrel burrows); need seasonal water sources for breeding.	Low. No suitable habitat in project area.	October-April
Rana aurora draytonii California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes with emergent vegetation.	Low. Limited habitat in project area.	October-April
Spea (Scaphiopus) hammondii Western spadefoot toad	FSC/CSC/--	Occurs seasonally in grasslands, prairies, chaparral, and woodlands, in and around wet sites. Breeds in shallow, temporary pools formed by winter rains. Takes refuge in burrows.	Low. Limited habitat in project area.	October-April
Birds				
Agelaius tricolor Tricolored blackbird	FSC/CSC/--	Nomadic resident of Sacramento-San Joaquin Valley and low foothills; nests colonially in vicinity of fresh water, marshy areas. Colonies prefer heavy growths of cattails and tules.	Low. Minimal nesting and foraging habitat occurs for this species in the project area.	Year round
***Athene cunicularia* Western burrowing owl**	FSC/CSC/--	Inhabits open, grasslands and scrublands characterized by low-growing vegetation. Subterranean nester dependent upon burrowing mammals, specifically California ground squirrel.	**Medium.** Potential nest sites along proposed alignment and SJ River area.	Spring and Winter
Branta canadensis leucopareia Aleutian Canada goose	FD, FSC/--/--	Feeds in emergent wetlands, moist grasslands, croplands, pastures and meadows near water.	Low. Species may be temporarily affected by pipeline construction in agricultural fields.	Winter months

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Likelihood to Occur	Period of Identification/ Blooming Period
Buteo regalis Ferruginous hawk	FSC/CSC/--	Inhabits open grasslands, low foothills and desert scrub; nests in trees, low cliffs, and other elevated structures. Eats mainly lagomorphs, and other small mammals; also birds, amphibians, and reptiles. No nesting records in California.	Low. Project site lacks suitable nesting habitat, potential foraging habitat exists within fallow ag. and disturbed grassland areas and may be temporarily disturbed.	Winter
***Buteo swainsoni* Swainson's hawk**	FSC/CT/--	Forages in open plains, grasslands and prairies; typically nests in trees or large shrubs.	**Medium.** Foraging area may be disturbed during pipeline construction activities near San Joaquin River. Species has been identified within 2 miles of project area.	Year round
Calypte costae Costa's hummingbird	FSC/--/--	Inhabits arid scrub and chaparral communities and edges of desert and valley foothill riparian communities. Requires herbaceous and woody plants with nectar-producing flowers, and shrubs and trees for cover.	Low. Limited habitat in project area.	Year round
Carduelis lawrencei Lawrence's goldfinch	FSC/--/--	Dry grassy slopes with weed patches, chaparral, and open woodlands; nests in trees or shrubs.	Low. Limited habitat in project area.	Spring and summer months
Chaetura vauxi Vaux's swift	FSC/CSC/--	Nests in large hollow trees and forages widely, especially over riparian areas and open water.	Low. Limited habitat in project area.	Spring and summer months
Charadrius montanus Mountain plover	FC/CSC/--	Winters in Central California on bare dirt fields and short grasslands. No nesting records in California.	Low. Limited foraging habitat with no suitable nesting areas.	September-March
Elanus leucurus White-tailed kite	FSC/CP/--	Nests in dense oak, willow, or other tree stand near open grasslands meadows, farmlands, and emergent wetlands.	Low. Species may be temporarily affected by pipeline construction in agricultural fields.	Year Round
Empidonax trailii brewsteri Little willow flycatcher	FSC/--/--	Nests in dense riparian cover. Summer migrant in the project area.	Low. Limited riparian habitat within project vicinity.	Summer
Falco peregrinus anatum American peregrine falcon	FD, FSC/CE /--	Breeds on high cliffs, banks, dunes, mounds, and human-made structures near wetlands, lakes, rivers, or other sources of water.	Low. Limited habitat in project area.	Spring and summer months
Grus canadensis tabida Greater sandhill crane	--/CT/--	Open habitats, shallow lakes, and emergent wetlands. In winter also uses dry grasslands and croplands near wetlands.	Low. Limited habitat will be affected by the proposed project.	Year round
Haliaeetus leucocephalus Bald eagle	FT, FPD/CE/--	Nests in large trees with open branches along lake and river margins, usually within one mile of water.	Low. Limited habitat will be affected by the proposed project.	Year round

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Likelihood to Occur	Period of Identification/ Blooming Period
Lanius ludovicianus Loggerhead shrike	FSC/CSC/--	Nests in dense shrubs and brush near open foraging areas such as grasslands.	Low. Potential foraging habitat within fallow ag and disturbed grasslands. Limited nesting habitat along SJ River.	Year round
Melanerpes lewis Lewis' woodpecker	FSC/--/--	Winters in oak savannahs, and broken deciduous and coniferous habitats.	Low. Limited habitat within the project area.	Spring and summer months
Numenius americanus Long-billed curlew	FSC/CSC/--	Forages along lakes, marshes, mudflats and sandy beaches. Nests in prairies and plains.	Low. Limited habitat within the project area.	Spring and summer months
Picoides nuttallii Nuttall's woodpecker	FLC/--/--	Uses riparian areas with adjacent oak woodland.	Low. Limited habitat within the project area.	Spring and summer months
Plegadis chihi White-faced ibis	FSC/CSC/--	Historically nested around Los Banos in freshwater wetland areas; presently no individuals breeding in San Joaquin Valley and only a few breeding individuals in the northern Sacramento Valley.	Low. Presently out of species range, limited wetland habitat in project vicinity.	October-March
Selasphorus rufus Rufous hummingbird	FSC/--/--	Riparian areas, open woodlands, chaparral and other areas rich with nectar producing flowers.	Low. Limited foraging habitat present within the project area.	October-March
Toxostoma redivivum California thrasher	FSC/--/--	Nests in dense chaparral habitats, March through August.	Low. Limited habitat within the project area.	March- August
Mammals				
Corynorhinus townsendii pallescens Pale big-eared bat	FSC/CSC/--	In a variety of habitats; most common in mesic sites with appropriate roosting, maternity, and hibernacula sites free from human disturbance. Roosts in caves, lava tubes, and abandoned mines. Feeds near forested areas.	Low. No identified roosting sites in the project area.	April-October
Dipodomys heermanni dixoni Merced kangaroo rat	FSC/--/--	Forages in grasslands, moderate chaparral and open cismontane woodlands, burrows in well-drained friable soil; preferred burrowing substrate is fine, deep soil.	Low. Project area has limited, marginal habitat, and is outside of documented range.	Year round
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/CE/--	Subspecies of San Joaquin kangaroo rat. In sandy and saline sandy soils in annual Valley grassland, chenopod scrub, alkali sink communities. Needs open/sparse vegetation, loose soils.	Low. Limited, marginal habitat in project area.	Year round
Eumops perotis californicus Greater western mastiff-bat	FSC/CSC/--	Forages over grasslands and roosts in caves and rock crevices.	Low. No identified roosting sites in the project area.	Year round

Species	Listing Status Federal/ State/ CNPS Listing	General Habitat	Likelihood to Occur	Period of Identification/ Blooming Period
Myotis ciliolabrum Small-footed myotis bat	FSC/--/--	Forages over grasslands and roosts in buildings, caves, and rock crevices in relatively arid woody and brushy uplands near water	Low. No identified roosting sites in the project area.	Year round
Myotis volans Long-legged myotis bat	FSC/--/--	Forages over grasslands and chaparral and roosts in trees, caves, buildings and rock crevices.	Low. No identified roosting sites in the project area.	March-November
Myotis yumanensis Yuma myotis bat	FSC/--/--	Forages over open water and streams and roosts in trees, buildings, caves and rock crevices.	Low. No identified roosting sites in the project area.	April-October
Neotoma fuscipes riparia Riparian woodrat	FE/CSC/--	Inhabits riparian areas along the San Joaquin, Stanislaus, and Tuolumne rivers. Prefer areas with mix of brush and trees. Need suitable nesting sites in trees, snags, or logs.	Low. Limited habitat for this species occurs in the project area along the San Joaquin River.	Year round
Perognathus inornatus inornatus San Joaquin pocket mouse	FSC/--/--	Typically found in grasslands and blue oak savannas between 1,100 to 2,000 feet; need friable soils.	Low. Potential habitat occurs in the grasslands and chenopod scrub however the elevation is most likely outside of species range.	Year round
Sylvilagus bachmani riparius Riparian brush rabbit	FE/CE/--	Riparian areas on the San Joaquin River in northern Stanislaus County. Prefers dense thickets of wild rose, willows, and blackberries.	Low. Limited habitat for this species occurs in the project area along the western bank of the San Joaquin River.	Year round
Vulpes macrotis mutica San Joaquin kit fox	FE/CT/--	Occurs in native valley and foothill grasslands and chenopod scrub communities of the valley floor and surrounding foothills. Prefers open level areas with loose-textured soils supporting scattered, shrubby vegetation and little human disturbance.	Low. Limited habitat for this species occurs in the project area.	Year round

United States Fish and Wildlife Service classifications:
FE = Species in danger of extinction throughout all or significant portion of it's range.
FT = Species likely to become endangered within foreseeable future throughout all or significant portion of its range.
FP = Species proposed endangered.
FC = Candidate information now available indicates that listing may be appropriate with supporting data currently on file.
FSC = Species of special concern.
FPD = Species proposed for delisting.
FD = Species delisted, but being monitored.
FLC = Species of local concern.

California Department of Fish and Game classifications:

CE = State listed as endangered. Species who's continued existence in California is jeopardized.
CT = State listed as threatened. Species, although not presently threatened with extinction, may become endangered in the foreseeable future.
CR = State listed as rare. Plant species, although not presently threatened with extinction, may become endangered in the foreseeable future.
CSC = California species of special concern. Animal species with California breeding populations that may face extinction in the near future.
CP = Fully protected by the State of California under Section 3511 and 4700 of the CDFG Code.

California Native Plant Society List classifications:

1A = Plants that are presumed extinct in California.
1B = Plants that are Rare, Threatened, or Endangered in California and elsewhere.
2 = Plants that are Rare, Threatened or Endangered in California but more common elsewhere.
3 = Plants for which more information is needed.
4 = Plants of limited distribution.

SOURCES: CDFG, 2003; CNPS, 2003; USFWS, 2003

APPENDIX G

CONSTRUCTION EMISSION CALCULATIONS

TABLE I-1: METROMEDIA CONSTRUCTION-RELATED EMISSIONS ESTIMATES UNDER UNCONTROLLED, TIER 1 AND TIER 2 MITIGATED CASES

Uncontrolled Emissions Case

Daily Emissions Estimates

			Maximum Construction Day Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	1 Crew Trenching pounds/day	2 Crews Boring pounds/day	Total pounds/day	Significance Criteria pounds/day
Carbon Monoxide	21	75	21	150	171	550
Reactive Organic Gases	3	5	3	9	12	82
Nitrogen Oxides	26	16	26	33	58	82
Sulfur Oxides	2	1	2	3	5	82
Particulate Matter (PM-10)	3	2	3	3	6	82

Quarterly Emissions Estimates

			Maximum Quarterly Construction Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	1 Crew Trenching tons/quarter	2 Crews Boring tons/quarter	Total tons/quarter	Significance Criteria tons/quarter
Carbon Monoxide	21	75	1	6	7	21
Reactive Organic Gases	3	5	0	0	0	3
Nitrogen Oxides	26	16	1	1	2	3
Sulfur Oxides	2	1	0	0	0	3
Particulate Matter (PM-10)	3	2	0	0	0	3

Assumes six days per week; 13 weeks per quarter.

Tier 1 Mitigated Case (Properly Tuned Equipment and California Diesel Fuel)

NOx Daily Emissions Estimates

			Maximum Construction Day Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	1 Crew Trenching pounds/day	2 Crews Boring pounds/day	Total pounds/day	Significance Criteria pounds/day
Reactive Organic Gases	3	5	3.03	9.5	12.49	82
Nitrogen Oxides	23	15	23	30	53	82

NOx Quarterly Emissions Estimates

			Maximum Quarterly Construction Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	1 Crew Trenching tons/quarter	2 Crews Boring tons/quarter	Total tons/quarter	Significance Criteria tons/quarter
Reactive Organic Gases	3	5	0	0	0	3
Nitrogen Oxides	23	15	1	1	2	3

TABLE I-3: ASSUMED CONSTRUCTION EQUIPMENT MIX AND MITIGATED EMISSIONS ESTIMATES

Construction Equipment--Street Trench Spread Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	asphalt paver	1	diesel	80	0.59	3	3.2	0.5	9.3	0.9	0.5	1.0	0.1	2.9	0.3	0.1
	roller	1	diesel	78	0.575	1	3.2	0.9	8.1	0.9	0.5	0.3	0.1	0.8	0.1	0.0
	windrow elevato	1	diesel	80	0.53	1	4.5	0.9	9.8	0.9	0.5	0.4	0.1	0.9	0.1	0.0
	grinder	1	diesel	500	0.53	1	4.5	0.9	9.8	0.9	0.5	2.7	0.5	5.7	0.5	0.3
	backhoe	2	diesel	78	0.465	6	5.0	0.9	9.3	0.9	0.7	4.8	0.9	9.0	0.9	0.7
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	haul truck	1	diesel	NA	NA	12	144.3	22.4	124.0	4.0	15.8	3.8	0.6	3.3	0.1	0.4
	automobile	10	gasoline	NA	NA	20	183.3	16.4	19.9	0.3	21.3	8.1	0.7	0.9	0.0	0.9
												21	**3**	**23**	**2**	**3**

Fugitive Dust Sources:

Excavation / Soil Density

Amount of soil removed (tons) = (A x B)/2,000

A = Amount of soil removed (cy) = 66.67 cubic yards (200 ft x 1.5 ft wide x 6 ft deep)
B = Soil Density (lbs/cy) = 2,528 pounds
Total = 84.27 tons

Excavation / Emissions

Emissions (PM-10) for aggregate batch drop (excavate and stockpile/aggregate collected and loaded into haul truck)

AP-42 Emissions Factor (lbs/ton) = n x k x (0.0032)(U/5)^1.3 / (M/2)^1.4

n = number of batch drops 3
k = particle size multiplier = 0.35 for PM-10
U = mean wind speed = 7.9 miles per hour (based on ARB data for LAX)
M = material moisture content = 7.9 percent

Emissions Factor = 0.0009 lbs/ton

Emissions Rate (lbs/day) = **0.0750 pounds**

Construction Equipment--Directional Boring Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	vacuum trailer	1	gasoline	30	0.56	6	258.8	11.4	5.0	0.2	0.0	57.5	2.5	1.1	0.1	0.0
	drilling machine	1	diesel	70	0.75	8	9.1	1.4	9.8	0.9	0.7	8.4	1.3	9.0	0.8	0.6
	backhoe	1	diesel	78	0.465	4	5.0	0.9	9.3	0.9	0.7	1.6	0.3	3.0	0.3	0.2
	mini-excavator	1	diesel	17.4	0.58	4	5.0	0.5	9.8	0.9	0.7	0.4	0.0	0.9	0.1	0.1
							grams/hr	grams/hr	grams/hr	grams/hr	grams/hr					
	water truck	1	diesel	NA	NA	1	169.3	18.7	82.8	NA	3.4	0.4	0.0	0.2	NA	0.0
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	automobile	10	gasoline	NA	NA	16	183.3	16.4	19.9	0.3	21.3	6.5	0.6	0.7	0.0	0.8
												75	**5**	**15**	**1**	**2**

Notes: 1) Haul-truck trip length is assumed to be 10 miles round trip @ 25 mph with 15 minute idle-time; emissions based on EMFAC7G, Year 1999, HDDT.
2) 12 haul trips per day are assumed for hauling spoils and delivering fill and materials.
3) Automobile represents construction worker commute trips; based on EMFAC7G, Year 1999, LDA-Catalytic, 75 degrees, 40 mph, 720 minute rest time; 30 miles round-trip.

References: SCAQMD CEQA Handbook Table A9-8 and U.S. EPA, Nonroad Engine and Vehicle Emission Study-Report, November 1991.

Mitigation: Proper Tuning of off-road diesel equipment (0.05 reduction factor) and use of California Diesel Fuel.

Reference: Air Resources Board, Public Meeting to Consider Approval of California's Emissions Inventory for Off-Road Large Compression-Ignited (CI) Engines (>25 HP), January 2000.

TABLE I-2: ASSUMED CONSTRUCTION EQUIPMENT MIX AND UNCONTROLLED EMISSIONS ESTIMATES

Construction Equipment--Street Trench Spread Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	asphalt paver	1	diesel	80	0.59	3	3.2	0.5	10.4	0.9	0.5	1.0	0.1	3.3	0.3	0.1
	roller	1	diesel	78	0.575	1	3.2	0.9	9.1	0.9	0.5	0.3	0.1	0.9	0.1	0.0
	windrow elevato	1	diesel	80	0.53	1	4.5	0.9	10.9	0.9	0.5	0.4	0.1	1.0	0.1	0.0
	grinder	1	diesel	500	0.53	1	4.5	0.9	10.9	0.9	0.5	2.7	0.5	6.4	0.5	0.3
	backhoe	2	diesel	78	0.465	6	5.0	0.9	10.4	0.9	0.7	4.8	0.9	10.0	0.9	0.7
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	haul truck	1	diesel	NA	NA	12	144.3	22.4	124.0	4.0	15.8	3.8	0.6	3.3	0.1	0.4
	automobile	10	gasoline	NA	NA	20	183.3	16.4	19.9	0.3	21.3	8.1	0.7	0.9	0.0	0.9
												21	**3**	**26**	**2**	**3**

Fugitive Dust Sources:

Excavation / Soil Density

Amount of soil removed (tons) = (A x B)/2,000

Assumed Worse Case

A = Amount of soil removed (cy) =	2,096.90 cubic yards	Trenching = 88.9 cubic yards/day
B = Soil Density (lbs/cy) =	2,528 pounds	Bore Pit = 300 cubic yards (100 cubic yards excavated/day)
Total =	2,650.48 tons	Bore Tunnel ={[(90 feet * 15.9 cubic yards/foot) / 3 yards]/4}

Excavation / Emissions

Emissions (PM-10) for aggregate batch drop (excavate and stockpile/aggregate collected and loaded into haul truck)

AP-42 Emissions Factor (lbs/ton) = n x k x (0.0032)(U/5)^1.3 / (M/2)^1.4

n = number of batch drops	3	
k = particle size multiplier =	0.35 for PM-10	
U = mean wind speed =	7.9 miles per hour	(based on ARB data for LAX)
M = material moisture content =	7.9 percent	

Emissions Factor = 0.0009 lbs/ton

Emissions Rate (lbs/day) = **2.3588 pounds**

Construction Equipment--Directional Boring Spread Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	vacuum trailer	1	gasoline	30	0.56	6	258.8	11.4	5.0	0.2	0.0	57.5	2.5	1.1	0.1	0.0
	drilling machine	1	diesel	70	0.75	8	9.1	1.4	10.9	0.9	0.7	8.4	1.3	10.1	0.8	0.6
	backhoe	1	diesel	78	0.465	4	5.0	0.9	10.4	0.9	0.7	1.6	0.3	3.3	0.3	0.2
	mini-excavator	1	diesel	17.4	0.58	4	5.0	0.5	10.9	0.9	0.7	0.4	0.0	1.0	0.1	0.1
							grams/hr	grams/hr	grams/hr	grams/hr	grams/hr					
	water truck	1	diesel	NA	NA	1	169.3	18.7	82.8	0.0	3.4	0.4	0.0	0.2	0.0	0.0
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	automobile	10	gasoline	NA	NA	16	183.3	16.4	19.9	0.3	21.3	6.5	0.6	0.7	0.0	0.8
												75	**5**	**16**	**1**	**2**

Notes: 1) Haul-truck trip length is assumed to be 10 miles round trip @ 25 mph with 15 minute idle-time; emissions based on EMFAC7G, Year 1999, HDDT.
2) 12 haul trips per day are assumed for hauling spoils and delivering fill and materials.
3) Automobile represents construction worker commute trips; based on EMFAC7G, Year 1999, LDA-Catalytic, 75 degrees, 40 mph, 720 minute rest time; 30 miles round-trip.

References: SCAQMD CEQA Handbook Table A9-8 and U.S. EPA, Nonroad Engine and Vehicle Emission Study-Report, November 1991.

TABLE I-1: METROMEDIA CONSTRUCTION-RELATED EMISSIONS ESTIMATES UNDER UNCONTROLLED, TIER 1 AND TIER 2 MITIGATED CASES

Uncontrolled Emissions Case

Daily Emissions Estimates

			Maximum Construction Day Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	2 Crews Trenching pounds/day	1 Crew Boring pounds/day	Total pounds/day	Significance Criteria pounds/day
Carbon Monoxide	21	75	42	75	117	550
Reactive Organic Gases	3	5	6	5	11	82
Nitrogen Oxides	26	16	51	16	68	82
Sulfur Oxides	2	1	4	1	5	82
Particulate Matter (PM-10)	3	2	5	2	7	82

Quarterly Emissions Estimates

			Maximum Quarterly Construction Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	2 Crews Trenching tons/quarter	1 Crew Boring tons/quarter	Total tons/quarter	Significance Criteria tons/quarter
Carbon Monoxide	21	75	2	3	5	21
Reactive Organic Gases	3	5	0	0	0	3
Nitrogen Oxides	26	16	2	1	3	3
Sulfur Oxides	2	1	0	0	0	3
Particulate Matter (PM-10)	3	2	0	0	0	3

Assumes six days per week; 13 weeks per quarter.

Tier 1 Mitigated Case (Properly Tuned Equipment and California Diesel Fuel)

NOx Daily Emissions Estimates

			Maximum Construction Day Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	2 Crews Trenching pounds/day	1 Crew Boring pounds/day	Total pounds/day	Significance Criteria pounds/day
Reactive Organic Gases	3	5	6.06	4.7	10.79	82
Nitrogen Oxides	23	15	47	15	62	82

NOx Quarterly Emissions Estimates

			Maximum Quarterly Construction Scenario			SMAQMD
Pollutant	1 Crew Trenching pounds/day	1 Crew Boring pounds/day	2 Crews Trenching tons/quarter	1 Crew Boring tons/quarter	Total tons/quarter	Significance Criteria tons/quarter
Reactive Organic Gases	3	5	0	0	0	3
Nitrogen Oxides	23	15	2	1	2	**3**

TABLE I-3: ASSUMED CONSTRUCTION EQUIPMENT MIX AND MITIGATED EMISSIONS ESTIMATES

Construction Equipment--Street Trench Spread Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	asphalt paver	1	diesel	80	0.59	3	3.2	0.5	9.3	0.9	0.5	1.0	0.1	2.9	0.3	0.1
	roller	1	diesel	78	0.575	1	3.2	0.9	8.1	0.9	0.5	0.3	0.1	0.8	0.1	0.0
	windrow elevato	1	diesel	80	0.53	1	4.5	0.9	9.8	0.9	0.5	0.4	0.1	0.9	0.1	0.0
	grinder	1	diesel	500	0.53	1	4.5	0.9	9.8	0.9	0.5	2.7	0.5	5.7	0.5	0.3
	backhoe	2	diesel	78	0.465	6	5.0	0.9	9.3	0.9	0.7	4.8	0.9	9.0	0.9	0.7
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	haul truck	1	diesel	NA	NA	12	144.3	22.4	124.0	4.0	15.8	3.8	0.6	3.3	0.1	0.4
	automobile	10	gasoline	NA	NA	20	183.3	16.4	19.9	0.3	21.3	8.1	0.7	0.9	0.0	0.9
												21	**3**	**23**	**2**	**3**

Fugitive Dust Sources:

Excavation / Soil Density

Amount of soil removed (tons) = (A x B)/2,000

A = Amount of soil removed (cy) =	66.67	cubic yards	(200 ft x 1.5 ft wide x 6 ft deep)
B = Soil Density (lbs/cy) =	2,528	pounds	
Total =	84.27	tons	

Excavation / Emissions

Emissions (PM-10) for aggregate batch drop (excavate and stockpile/aggregate collected and loaded into haul truck)

AP-42 Emissions Factor (lbs/ton) = n x k x (0.0032)(U/5)^1.3 / (M/2)^1.4

n = number of batch drops	3		
k = particle size multiplier =	0.35	for PM-10	
U = mean wind speed =	7.9	miles per hour	(based on ARB data for LAX)
M = material moisture content =	7.9	percent	

Emissions Factor = 0.0009 lbs/ton

Emissions Rate (lbs/day) = **0.0750 pounds**

Construction Equipment--Directional Boring Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	vacuum trailer	1	gasoline	30	0.56	6	258.8	11.4	5.0	0.2	0.0	57.5	2.5	1.1	0.1	0.0
	drilling machine	1	diesel	70	0.75	8	9.1	1.4	9.8	0.9	0.7	8.4	1.3	9.0	0.8	0.6
	backhoe	1	diesel	78	0.465	4	5.0	0.9	9.3	0.9	0.7	1.6	0.3	3.0	0.3	0.2
	mini-excavator	1	diesel	17.4	0.58	4	5.0	0.5	9.8	0.9	0.7	0.4	0.0	0.9	0.1	0.1
							grams/hr	grams/hr	grams/hr	grams/hr	grams/hr					
	water truck	1	diesel	NA	NA	1	169.3	18.7	82.8	NA	3.4	0.4	0.0	0.2	NA	0.0
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	automobile	10	gasoline	NA	NA	16	183.3	16.4	19.9	0.3	21.3	6.5	0.6	0.7	0.0	0.8
												75	**5**	**15**	**1**	**2**

Notes: 1) Haul-truck trip length is assumed to be 10 miles round trip @ 25 mph with 15 minute idle-time; emissions based on EMFAC7G, Year 1999, HDDT.
2) 12 haul trips per day are assumed for hauling spoils and delivering fill and materials.
3) Automobile represents construction worker commute trips; based on EMFAC7G, Year 1999, LDA-Catalytic, 75 degrees, 40 mph, 720 minute rest time; 30 miles round-trip.

References: SCAQMD CEQA Handbook Table A9-8 and U.S. EPA, Nonroad Engine and Vehicle Emission Study-Report, November 1991.

Mitigation: Proper Tuning of off-road diesel equipment (0.05 reduction factor) and use of California Diesel Fuel.

Reference: Air Resources Board, Public Meeting to Consider Approval of California's Emissions Inventory for Off-Road Large Compression-Ignited (CI) Engines (>25 HP), January 2000.

TABLE I-2: ASSUMED CONSTRUCTION EQUIPMENT MIX AND UNCONTROLLED EMISSIONS ESTIMATES

Construction Equipment--Street Trench Spread Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	asphalt paver	1	diesel	80	0.59	3	3.2	0.5	10.4	0.9	0.5	1.0	0.1	3.3	0.3	0.1
	roller	1	diesel	78	0.575	1	3.2	0.9	9.1	0.9	0.5	0.3	0.1	0.9	0.1	0.0
	windrow elevato	1	diesel	80	0.53	1	4.5	0.9	10.9	0.9	0.5	0.4	0.1	1.0	0.1	0.0
	grinder	1	diesel	500	0.53	1	4.5	0.9	10.9	0.9	0.5	2.7	0.5	6.4	0.5	0.3
	backhoe	2	diesel	78	0.465	6	5.0	0.9	10.4	0.9	0.7	4.8	0.9	10.0	0.9	0.7
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	haul truck	1	diesel	NA	NA	12	144.3	22.4	124.0	4.0	15.8	3.8	0.6	3.3	0.1	0.4
	automobile	10	gasoline	NA	NA	20	183.3	16.4	19.9	0.3	21.3	8.1	0.7	0.9	0.0	0.9
												21	**3**	**26**	**2**	**3**

Fugitive Dust Sources:

Excavation / Soil Density

Amount of soil removed (tons) = (A x B)/2,000

Assumed Worse Case

A = Amount of soil removed (cy) =	2,096.90 cubic yards	Trenching = 88.9 cubic yards/day
B = Soil Density (lbs/cy) =	2,528 pounds	Bore Pit = 300 cubic yards (100 cubic yards excavated/day)
Total =	2,650.48 tons	Bore Tunnel ={[(90 feet * 15.9 cubic yards/foot) / 3 yards]/4}

Excavation / Emissions

Emissions (PM-10) for aggregate batch drop (excavate and stockpile/aggregate collected and loaded into haul truck)

AP-42 Emissions Factor (lbs/ton) = n x k x (0.0032)(U/5)^1.3 / (M/2)^1.4

n = number of batch drops	3	
k = particle size multiplier =	0.35 for PM-10	
U = mean wind speed =	7.9 miles per hour	(based on ARB data for LAX)
M = material moisture content =	7.9 percent	

Emissions Factor = 0.0009 lbs/ton

Emissions Rate (lbs/day) = **2.3588 pounds**

Construction Equipment--Directional Boring Spread Scenario:

	Type	Assumed # of type	Fuel	Average Rated HP	Typical operating load factor	Hours of operation	CO factor grams/hp-hr	HC factor grams/hp-hr	NOx factor grams/hp-hr	SOx factor grams/hp-hr	PM-10 factor grams/hp-hr	CO Emissions lb/day	HC Emissions lb/day	NOx Emissions lb/day	SOx Emissions lb/day	PM-10 Emissions lb/day
Assumed Mix of Equipment:	vacuum trailer	1	gasoline	30	0.56	6	258.8	11.4	5.0	0.2	0.0	57.5	2.5	1.1	0.1	0.0
	drilling machine	1	diesel	70	0.75	8	9.1	1.4	10.9	0.9	0.7	8.4	1.3	10.1	0.8	0.6
	backhoe	1	diesel	78	0.465	4	5.0	0.9	10.4	0.9	0.7	1.6	0.3	3.3	0.3	0.2
	mini-excavator	1	diesel	17.4	0.58	4	5.0	0.5	10.9	0.9	0.7	0.4	0.0	1.0	0.1	0.1
							grams/hr	grams/hr	grams/hr	grams/hr	grams/hr					
	water truck	1	diesel	NA	NA	1	169.3	18.7	82.8	0.0	3.4	0.4	0.0	0.2	0.0	0.0
						# of round-trips	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip	grams/veh-trip					
	automobile	10	gasoline	NA	NA	16	183.3	16.4	19.9	0.3	21.3	6.5	0.6	0.7	0.0	0.8
												75	**5**	**16**	**1**	**2**

Notes: 1) Haul-truck trip length is assumed to be 10 miles round trip @ 25 mph with 15 minute idle-time; emissions based on EMFAC7G, Year 1999, HDDT.
2) 12 haul trips per day are assumed for hauling spoils and delivering fill and materials.
3) Automobile represents construction worker commute trips; based on EMFAC7G, Year 1999, LDA-Catalytic, 75 degrees, 40 mph, 720 minute rest time; 30 miles round-trip.

References: SCAQMD CEQA Handbook Table A9-8 and U.S. EPA, Nonroad Engine and Vehicle Emission Study-Report, November 1991.