

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper, Total Recoverable	µg/L	10.2		13.0		
MBAS	µg/L	500				
Nitrate plus Nitrite (as N)	mg/L	10				
Total Coliform Organisms ²	MPN/100ml					240
Electrical Conductivity (1 April to 31 August)	µmhos/cm	1000				
Electrical Conductivity (1 Sept to 31 March)	µmhos/cm	700				

¹ Annual Average

² Effluent total coliform also shall not exceed i.) 2:2 MPN/100ml, as a 7-day median; and ii). 23 MPN/100ml, more than once in any 30-day period.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E section V.). This Order also contains effluent limitations for acute and chronic toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. Acute Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00) The Basin Plan also states that, "...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

Acute Toxicity. 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%

The previous permit, Order No. R5-2004-0028, contained these same acute toxicity requirements. Based on the monthly acute toxicity test results conducted during April 2004 through August 2008, the Discharger demonstrated compliance with these acute toxicity requirements.

- b. Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00.) Based on chronic WET testing performed by the Discharger from August 2007 through March 2009, the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUC) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, in accordance with State Water Board Order WQO 2003-0012 for the Los Coyotes and Long Beach Wastewater Reclamation Plants and WQ 2008-0008 for the City of Davis Wastewater Treatment Plant, this Order includes a narrative effluent limitation for chronic whole effluent toxicity.

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if a pattern of effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were calculated based upon the permitted average daily discharge flow allowed in section IV.A.1.f and 2.f. of this Order.

2. Averaging Periods for Effluent Limitations

40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. *"First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed."* (TSD, pg. 96) This Order utilizes maximum daily effluent limitations in lieu of average weekly effluent limitations for aluminum and ammonia as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for TSS, BOD₅, pH, and total coliform, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3. of this Fact Sheet.

For effluent limitations based on Primary and Secondary MCLs, except nitrate and nitrite, this Order includes annual average effluent limitations. The Primary and Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate and nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations.

3. Satisfaction of Anti-Backsliding Requirements

The effluent limitations in this Order are at least as stringent as the effluent limitations in the existing Order, except as discussed below. Based on new information gathered over the term of Order No. R5-2004-0028, this Order does not carry forward the effluent limitations for 2,4,6-Trichlorophenol, arsenic, bis(2-ethylhexyl)phthalate, bromodichloromethane, chlorine residual, cyanide, dibromochloromethane, iron, manganese, oil and grease, and settleable solids, because the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream exceedance of the applicable water quality criteria/objective for these constituents as discussed in previous section IV.C.3.c. In addition, this Order contains less stringent effluent limitations for aluminum and changes the effluent limitations for turbidity, to operational specifications. This relaxation of effluent limitations is consistent with the anti-backsliding provisions, and the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing water quality will be

insignificant.

- a. **Aluminum.** Order No. R5-2004-0028 requires that the effluent comply with a maximum daily effluent limit of 140 µg/L and a monthly average effluent limit of 71 µg/L based on USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum. However, NAWQC based the chronic criterion on specific receiving water conditions where there is low pH (below 6.5) and low hardness levels (below 50 mg/L as CaCO₃). Since the hardness values in the San Joaquin River are higher, which decreases the toxic effects to aquatic life, than the water hardness values in which the criterion was developed, USEPA advises that a water effects ratio (WER) might be appropriate to better reflect the actual toxicity of aluminum to aquatic organisms. The Discharger submitted its final Aluminum WER Study, *City of Manteca Aluminum Water-Effects Ratio (WER) Study* dated March 2007, which recommends a WER of 22.7 applicable to the chronic objectives. As allowed by Section 1.2 of the SIP, the Regional Water Board adjusted the chronic objectives by the Discharger's site-specific WER of 22.7. As a result, this Order contains a final MDEL for aluminum of 750 µg/L and a AMEL of 407 µg/L. The Regional Water Board finds that applying the site-specific WER of 22.7 to the chronic criterion for aluminum, which relaxes the effluent limitations, is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Any impact on existing water quality will be insignificant.
- b. **Turbidity.** Order No. R5-2004-0028 requires that the effluent comply with a daily average limit of 2 nephelometric turbidity units (NTU) and a daily maximum limit of 10 NTU for turbidity, and also prohibited the effluent from exceeding 5 NTU more than 5 percent of the time to implement Basin Plan's narrative objectives. Failure of the Discharger's filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, requires several hours, to days, to identify high coliform concentrations. The previous Order No. R5-2004-0028 required the Discharger to obtain a grab sample of the effluent to monitor turbidity once per day; since adoption of Order No. R5-2004-0028 the Facility was upgraded to monitor turbidity continuously. Moreover, the turbidity limitations in the previous Order No. R5-2004-0028 were solely an operational check to ensure the treatment system was functioning properly and could meet the limits for total coliform organisms. The effluent limitations were not intended to regulate turbidity in the receiving water. Rather, turbidity should be an operational parameter to determine proper system function and not a WQBEL. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, this Order contains operational turbidity specifications (See Special Provisions VI.C.6.e Turbidity Operational Requirements in the Limitations and Discharge Requirements section of this Order) to be met prior to disinfection in lieu of effluent limitations. The Regional Water Board finds inclusion of turbidity specifications in lieu of effluent limits is consistent with the

antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Any impact on existing water quality will be insignificant.

4. Satisfaction of Antidegradation Policy

This Order allows an increase discharge flow of 7.63 mgd (an increase in discharge from 9.87 mgd to 17.5 mgd) conditional upon compliance with permit limitations and completion of the Facility expansion project (See Provision VI.C.6.c of the Limitations and Discharge Requirements section of this Order). The Discharger released the *Draft Environmental Impact Report City of Manteca Wastewater Quality Control Facility and Collection System Master Plans Update Project July 2007* (prepared by EDWA) (The DEIR) for public review. The DEIR proposed Facility upgrades and expansions, and also summarized alternative treatment and disposal options to evaluate and determine the most viable means for expansion of the Facility. The Final Environmental Impact Report was released January 2008. The Discharger also developed and submitted to the Regional Water Board a report titled, *City of Manteca Antidegradation Analysis for Proposed Wastewater Quality Control Facility Discharge Modification, August 2008* (prepared by Larry Walker & Associates) (The Antidegradation Analysis) that provides a complete antidegradation analysis following the guidance provided by State Water Board APU 90-004. Pursuant to the guidelines, The Antidegradation Analysis evaluated whether changes in water quality resulting from the proposed capacity increase (17.5 mgd year-round tertiary treated discharge) are consistent with the maximum benefit to the people of the state, will not unreasonably affect beneficial uses, will not cause water quality to be less than water quality objectives, and that the discharge provides protection for existing in-stream uses and water quality necessary to protect those uses.

a. **Surface Water.** The Discharger developed a report titled, *City of Manteca Antidegradation Analysis for Proposed Wastewater Quality Control Facility Discharge Modification, August 2008*, (Larry Walker Associates.), that provides a complete antidegradation analysis following the guidance provided by State Water Board APU 90-004. Pursuant to the guidelines, the Report evaluated whether changes in water quality resulting from the proposed capacity increase to the San Joaquin River within the Sacramento-San Joaquin Delta, (7.63 mgd tertiary treated wastewater) are consistent with the maximum benefit to the people of the state, will not unreasonably affect beneficial uses, will not cause water quality to be less than water quality objectives, and that the discharge provides protection for existing in-stream uses and water quality necessary to protect those uses. The Regional Water Board concurs with the Antidegradation Analysis.

i. **Water quality impacts of an increase in permitted capacity.** This Order does not adversely impact beneficial uses of the receiving water or downstream receiving waters. All beneficial uses will be maintained and protected. This Order provides for an increase in the volume and mass of pollutants discharged directly to the receiving water. Code of Federal

Regulations 40 CFR 131.12 defines the following tier designations to describe water quality in the receiving water body.

Tier 1 Designation: *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.*

(40 CFR 131.12)

Tier 2 Designation: *Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control. (40 CFR 131.12)*

The tier designation is assigned on a pollutant-by-pollutant basis. The following is the potential effect on water quality parameters regulated in this Order, and was assessed in the Antidegradation Analysis.

- The near-field and far-field water quality of the San Joaquin River within the Sacramento-San Joaquin Delta with respect to chemical constituents, and DO, would be minimally affected by the proposed increase in discharge, and that the water quality necessary to protect beneficial uses would be maintained.
- However, this is not the case for temperature. Effluent cooling facilities planned as part of the Phase IV expansion, will be designed to mitigate potential exceedances of The Thermal Plan objectives. The Discharger submitted a study assessing the thermal impact of its discharge in the San Joaquin River, titled *City of Manteca Wastewater Quality Control Facility Thermal Plan Exception Analysis Final Report, February 2006*, and is requesting an exception to The Thermal Plan. Fisheries experts from the National Marine Fisheries Service are to determine the validity of the assumptions used to develop the temperature model and the conclusion regarding impacts to fisheries sources in the study before the Regional Water Board will consider the Discharger's request. Therefore, this Order requires compliance with the Thermal Plan.
- The increased discharge would negligibly increase loading of bioaccumulative constituents. No beneficial uses of San Joaquin River are anticipated to be adversely affected by the planned action.

ii. Scientific Rationale for Determining Potential Lowering of Water Quality.

The rationale used in the Antidegradation Analysis is based on Code of Federal Regulation, Section 131.12 (40 CFR 131.12), State Water Board Resolution No. 68-16, an Administrative Procedures Update (APU 90-004) issued by the State Water Board to the Regional Water Quality Control Boards, the Basin Plan, the CTR, and the 303(d) Listings.

The scientific rationale used in the Antidegradation Analysis evaluates the near-field and far-field water quality impacts of increasing the discharge. The near-field effects on San Joaquin River water quality will occur between the point of discharge and approximately 1-mile downstream of the discharge where advanced treated effluent and ambient river water are well-mixed. Near-field water quality impacts are estimated using 1) projected tertiary-treated effluent quality, 2) ambient river concentrations calculated from dry/below normal water years, 3) current permitted and proposed effluent flowrates, and 4) average late summer/early fall San Joaquin River flows observed during historical critical and dry water years. The far-field effects on the San Joaquin River were assessed on specific Sacramento-San Joaquin Delta locations where surface water is diverted for eventual use as drinking water and also in the Stockton Deep Water Ship Channel. Far-field water quality impacts are estimated using 1) historic effluent quality, 2) projected effluent quality, 3) current permitted and proposed effluent flowrates, and 4) modeled percent contribution effluent at selected Sacramento-San Joaquin Delta locations under representative critical and dry/below normal water years. This approach is consistent with recent USEPA guidance and addresses a key objective of the Antidegradation Analysis, which is to “[c]ompare receiving water quality to the water quality objectives established to protect designated beneficial uses” (APU 90-004).

The Antidegradation Analysis analyzed pollutants that were based on one or more of the following conditions: 1) the Facility received an effluent limitation for a particular constituent, 2) the constituent was identified as a pollutant/stressor on the 303(d) list for selected Delta waterways, 3) an adopted TMDL exists downstream of the discharge, or 4) the constituent is a historic pollutant of concern in the Delta. The Antidegradation Analysis evaluated each selected pollutant detected in the effluent and receiving water to determine if the proposed discharge increase of 7.63 mgd authorized by this Order potentially allows significant increase of the amount of pollutants present in the upstream and downstream receiving water influenced by the proposed discharge. Pollutants that significantly increased concentration or mass downstream would have required an alternatives analysis to determine whether implementation of alternatives to the proposed action would be in the best socioeconomic interest of the people of the region, and be to the maximum benefit of the people of the State. Details on the scientific rationale are discussed in detail in the Antidegradation Analysis. This includes a detailed discussion on calculating near-field, and long-term water quality effects associated with a continuous discharge to a tidal estuary where the effluent and tidal flows provide the critical mixing and dilution.

The Regional Water Board concurs with this scientific approach.

iii. Alternative Control Measures. APU 90-004 requires the consideration of “feasible alternative control measures” as part of the procedures for a complete antidegradation analysis. The Discharger considered several alternatives that would reduce or eliminate the lowering of water quality resulting from the proposed 7.63 mgd discharge increase. The Antidegradation Analysis assessed maintaining existing water quality in the San Joaquin River and the Delta with an increase in discharge through evaluating 1) effluent-to-land disposal, 2) additional wastewater treatment by microfiltration and reverse osmosis (MF/RO), or 3) no increase in discharge capacity. These plant expansion alternatives are summarized below:

- The land application of secondary treated effluent would offset projected reductions in San Joaquin River water quality as a result of the proposed project; however, operational costs are estimated at \$28.5 million to construct and an additional \$300,000 per year to operate. The Antidegradation Analysis further states that an economic impacts model estimates that these costs would have adverse socioeconomic effects (e.g. job losses). In addition, land application may elevate salinity and boron levels found in the Central Valley groundwater.
- The implementation of MF/RO would also offset estimated reductions in San Joaquin River water quality; however, the treatment facility would cost an estimated \$93.5 million to construct and an additional \$4.9 million per year to operate. The economic impacts model also estimates job losses due to this project, and the Antidegradation Analysis presents issues regarding the brine and crystallized residuals disposal.
- No Project Alternative, which is not to increase the discharge capacity.

None of the alternatives evaluated would substantially reduce or eliminate significant water quality impacts of the proposed action, because the proposed action would not significantly degrade water quality. Some of the alternatives may result in water quality effects elsewhere, or other environmental impacts, that are worse than those identified for the proposed action

iv. Socioeconomic Evaluation. The objective of the socioeconomic analysis was to determine if the lowering of San Joaquin River water quality within the Sacramento-San Joaquin Delta is in the maximum interest of the people of the state. The socioeconomic evaluation within the Antidegradation Analysis provides an in-depth analysis of: 1) cost and benefits and 2) socio-economic impacts of alternatives for maintaining existing water quality, and 3) balance of environmental benefits and socio-economic considerations. The Antidegradation Analysis also provided results from modeling of the economic impacts on the community.

Given the current infrastructure, future development in the cities of Manteca and Lathrop and surrounding communities, would rely on the Discharger and its Facility for wastewater collection, treatment, and recycled water services. The plant expansion of 7.63 mgd and increase surface water discharge would accommodate planned and approved growth in these cities. Should the incremental changes in San Joaquin River water quality characterized herein be disallowed, such action would: (1) force future developments in the Discharger's service area to find alternative methods for disposing of wastewater; (2) require adding a reverse-osmosis treatment processes to a significant portion of flow, and possibly other plant upgrades, to eliminate the small water quality changes; or (3) prohibit planned and approved development within and adjacent to the Discharger's service area. On balance, allowing the minor degradation of water quality is in the best interest of the people of the area and the state, compared to these other options; and is necessary to accommodate important economic or social development in the area.

v. Justification for Allowing Degradation. Potential degradation identified in the Antidegradation Analysis and due to this Order is justified by the following considerations:

- The increase in permitted discharge capacity is necessary to accommodate important economic and social development in the City of Manteca and surrounding communities, and is consistent with the Discharger's General Plan. Failure to approve the increase, or alternatively requiring the Discharger to implement control measures that would maintain existing water quality and mass emissions in the San Joaquin River, would have significant adverse economic and social impacts on the City of Manteca and surrounding communities and their citizens and businesses.
- The Facility will discharge Title 22 tertiary treated effluent that will result in minimal water quality degradation, and meet or exceed the highest statutory and regulatory requirements which meets or exceeds best practical treatment or control (BPTC).
- The Order is fully protective of the beneficial uses of the San Joaquin River within the Sacramento-San Joaquin Delta. The anticipated water quality changes in the San Joaquin River will not reduce or impair its

designated beneficial uses and is consistent with State and federal antidegradation policies.

- The increased discharge, while causing slight increases in downstream water quality concentrations for some constituents, will produce slight decreases in downstream concentrations for others,
 - The benefits of maintaining existing water quality and mass emissions for the constituents analyzed are not commensurate with the costs of additional treatment. Therefore, no feasible alternatives currently exist to reduce the impacts, and
 - The Discharger has fully satisfied the requirements of the intergovernmental coordination and public participation provisions of the State's continuing planning process concurrent with the public participation period of this Order.
- b. Groundwater.** Order No. R5-2004-0028 permitted land application of municipal wastewater and biosolids to approximately 260 acres of agricultural fields that grow primarily corn and alfalfa used for fodder. The DEIR investigated additional reclamation uses of the increased discharge within the vicinity of the Facility, but the Discharger determined that it's impracticable to acquire additional agricultural fields for reclamation use of the increase discharge flow. Following completed construction and implementation of the upgraded Facility, the Department of Public Health approved the Discharger's Title 22 Engineering Report and the use of the tertiary-level treated recycled water for construction purposes (2 September 2008). As a result, the Discharger obtained coverage for use of the recycled wastewater under the Regional Water Board's waiver of WDRs (Resolution No. R5-2008-0182). The Discharger is also seeking additional uses of recycled water (City of Manteca Recycled Water Master Plan, 2007), and therefore, this Order also contains land discharge and reclamation specifications (See following sections IV.F and G of this Fact Sheet).

The Discharger's available groundwater monitoring data indicate that underlying groundwater concentration levels for some constituents (e.g. TDS and nitrate) are elevated in some areas within the Facility. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution No. 68-16 provided that:

- i. the degradation is limited in extent;
- ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;

- iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

The Discharger ceased applying biosolids to land and instead since June 2003 hauls biosolids to an offsite landfill. The Discharger also supplemented its drinking water supply with surface water in August 2005, and added nitrification-denitrification facilities in July 2006 to its treatment system. These operational changes and Facility upgrades are considered appropriate BPTCs and protective of beneficial uses. Since implementation of these BPTCs, concentration levels in the groundwater have reduced (e.g. TDS and nitrate); however, groundwater monitoring results show concentration levels that still exceed water quality objectives and background groundwater quality.

In 2007, the Facility was also modified to fully separate the food-processing waste received from Eckert Cold Storage to discharge into the Facility's pond, which is tetra lined, and then applied to agricultural land as needed. As approved by the Regional Water Board and USEPA, Eckert was removed from the Discharger's Pretreatment Program, and instead, is regulated through a local ordinance wastewater discharge permit. The local ordinance in part requires Eckert to submit reports, sample their discharge, and develop any plans (e.g. pollution prevention) that are deemed necessary. Eckert Cold Storage is a seasonal discharger that processes frozen vegetables, cabbage and a variety of peppers. The food processing wastewater is pretreated by screening, DAF system, and pH neutralization before discharging to the Facility.

The Discharger has not submitted recommended implementation of additional BPTCs to minimize further degradation of the underlying groundwater, or a report demonstrating that the Discharger's land applications are consistent with the requirements in Resolution No. 68-16. Therefore, this Order contains groundwater limitations, land discharge specifications, and reclamation specifications for the protection of the beneficial uses of groundwater. Further, the Monitoring and Reporting Program section of this Order requires the City to implement and submit a Nutrient Management Plan.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD₅, TSS, and pH. The WQBELs consist of restrictions on pathogens, aluminum, nitrate plus nitrite, methylene blue active substances, ammonia, and electrical conductivity. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives

have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
Discharge Point No. 001**

Table F-17. Summary of Final Effluent Limitations (9.87 mgd)

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Biochemical Oxygen Demand 5-day @ 20°C (BOD ₅) ⁴	mg/L	10	15	20			
	lbs/day ¹	820	1235	1647			
Total Suspended Solids ⁴	mg/L	10	15	20			
	lbs/day ¹	820	1235	1647			
pH	standard units				6.5	8.0	
Total Coliform Organisms ²	MPN/100 ml					240	
Aluminum, Total Recoverable	µg/L	407	200 ⁵	750			
Copper, Total Recoverable	µg/L	10		13			
Nitrate plus Nitrite (as N)	mg/L	10					
Methylene blue active substances (MBAS)	µg/L	500					
Ammonia, Total (as N)	mg/L	1.4		3.4			
	lbs/day ¹	115		280			
Electrical Conductivity (1 April to 31 August)	µmhos/cm	700					
Electrical Conductivity (1 Sept to 31 March)	µmhos/cm	1000					

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Temperature	°F			3			
Flow	mgd			9.87 ⁶			
Chronic Toxicity ⁷	TU _c						
Acute Toxicity ⁸							

¹ Mass-based effluent limitations are established using the following formula:

$$\text{Mass (lbs/day)} = \text{flow rate (mgd)} \times 8.34 \times \text{effluent limitation (mg/L)}$$

where: Mass = mass limitation for a pollutant (lbs/day)

Effluent limitation = concentration limit for a pollutant (mg/L)

Flow rate = average dry weather flow (9.87 mgd)

² Effluent total coliform also shall not exceed i.) 2.2 MPN/100ml, as a 7-day median; and ii.) 23 MPN/100ml, more than once in any 30-day period.

³ The maximum effluent temperature shall not exceed the natural receiving water temperature by more than 20°F.

⁴ In addition to concentration-based effluent limitations, the arithmetic mean of TSS or CBOD₅ 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 time during the same period (85 percent removal).

⁵ Annual Average

⁶ Average Dry Weather Flow

⁷ There shall be no chronic toxicity in the effluent discharge

⁸ Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than: 70%, minimum for any one bioassay; and 90%, median for any three consecutive bioassays.

Table F-18. Summary of Final Effluent Limitations (17.5 mgd)

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Biochemical Oxygen Demand 5-day @ 20°C (BOD ₅) ⁴	mg/L	10	15	20			
	lbs/day ¹	820	1235	1647			
Total Suspended Solids ⁴	mg/L	10	15	20			
	lbs/day ¹	820	1235	1647 ²			
pH	standard units				6.5	8.0	
Total Coliform Organisms ²	MPN/100 ml					240	
Aluminum, Total Recoverable	µg/L	407	200 ⁵	750			
Copper, Total Recoverable	µg/L	10		13			
Nitrate plus Nitrite (as N)	mg/L	10					
Methylene blue active substances (MBAS)	µg/L	500					
Ammonia, Total (as N)	mg/L	1.4		3.4			
	lbs/day ¹	115		280			

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Electrical Conductivity (1 Sept to 31 March)	µmhos/cm	1000					
Electrical Conductivity (1 April to 31 August)	µmhos/cm	700					
Temperature	°F			³			
Flow	mgd			17.5 ⁶			
Chronic Toxicity ⁷	TU _c						
Acute Toxicity ⁸							

¹ Mass-based effluent limitations are established using the following formula:

$$\text{Mass (lbs/day)} = \text{flow rate (mgd)} \times 8.34 \times \text{effluent limitation (mg/L)}$$

where: Mass = mass limitation for a pollutant (lbs/day)

Effluent limitation = concentration limit for a pollutant (mg/L)

Flow rate = average dry weather flow (17.5 mgd)

² Effluent total coliform also shall not exceed i.) 2.2 MPN/100ml, as a 7-day median; and ii.) 23 MPN/100ml, more than once in any 30-day period.

³ The maximum effluent temperature shall not exceed the natural receiving water temperature by more than 20°F.

⁴ In addition to concentration-based effluent limitations, the arithmetic mean of TSS or CBOD₅ 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 time during the same period (85 percent removal).

⁵ Annual Average

⁶ Average Dry Weather Flow

⁷ There shall be no chronic toxicity in the effluent discharge

⁸ Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

70%, minimum for any one bioassay; and

90%, median for any three consecutive bioassays.

E. Interim Effluent Limitations

1. **Mercury.** See Section IV.C.3.d.iv. for the rationale for the interim mass-based effluent limitation for mercury.

F. Land Discharge Specifications

1. **Scope and Authority** Title 27 regulations conditionally exempt certain activities from its provisions. Several exemptions are relevant to the discharge of wastewater to land, and the operation of treatment and/or storage ponds, associated with the Facility only if 1) the discharge is regulated by Waste Discharge Requirements, 2) any groundwater degradation complies with the Basin Plan and Resolution No. 68-16 (Antidegradation Policy) (refer to section V.B of this Fact Sheet for further information), and 3) it does not need to be managed as a hazardous waste. (Title 27, section 20090, et. seq.)

2. **Applicable Technology-based and Receiving Water Limitations.** This Order contains domestic sewage treatment requirements to meet at least the minimum

federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133 (Refer to section IV.B.2. of this Fact Sheet) In addition, this Order contains technology equivalence requirements and receiving water limitations consistent with the Basin Plan to control domestic sewage to a degree that will not result in unreasonable degradation of groundwater (Refer to section V.B. of this Fact Sheet).

3. Applicable Waste Discharge Requirements. This Order contains the following waste discharge requirements:

- a. Hydraulic, BOD₅, and Nitrogen Loading.** Soils within the land application area provide a matrix for biodegradation of the organic components of wastewater, which is measured as biochemical oxygen demand (BOD). BOD is associated with both suspended solids and dissolved organic material. The BOD associated with suspended solids will remain close to the surface where the soil organisms have access to atmospheric oxygen to break the material down. The BOD in the dissolved organic material will percolate through the unsaturated zone of the soil and, under aerobic conditions, be removed during percolation. If the loading is too great, the soil will become anaerobic, and the crop and treatment process will fail.

The Discharger is required to obtain daily hydraulic and BOD₅ loading data and weekly total Nitrogen loading data per field when irrigation is occurring and to submit monthly reports. The Discharger's data indicates that the total monthly BOD₅ loading rates are low (e.g., <28 lbs/acre/day) and certifies that the loadings are at agronomic rates. However, the reports do not indicate the amount of loadings per field for each irrigation event.

Small and Decentralized Wastewater Management Systems by Crites and Tchobanoglous, states that land application is an effective process for BOD and pathogen removal. BOD loadings "on industrial rapid infiltration systems range from 100 to 600 lbs/acre/day." The authors recommend as a guideline for industrial wastewater discharges no more than 300 lbs/acre/day to avoid odor production. The municipal influent consists of residential and industrial users. Industrial users constitute less than one percent of the Facility's influent. Therefore, to ensure compliance with Discharge Prohibition III.E. and Groundwater Limitations V.B this Order contains a maximum BOD loading limit of 300 lbs/acre/day as a daily average based on this recommendation. Furthermore, because waste applications must be balanced to provide adequate plant nutrients and water while minimizing nuisance potential and percolation of waste constituents to the water table, this Order also requires hydraulic and Total Nitrogen loadings at reasonable agronomic rates.

- 4. Prohibition to Discharge Hazardous Waste.** Hazardous compounds are not usually associated with domestic or food processing wastewater and when present are reduced in the discharge to inconsequential concentrations through treatment or dilution. Still it is inappropriate to allow degradation of groundwater with such constituents, and therefore, this Order contains a prohibition to discharge waste

classified as "hazardous" under Title 23 CCR Chapter 15, Section 2521 (Section IV.A.5. of this Fact Sheet).

G. Reclamation Specifications

Reclaimed water must meet the requirements of CCRs, Title 22, Division 4, Chapter 3. Water Recycling Criteria. To comply with these requirements, this Order retains the reclamation requirements contained in previous Order R5-2004-0028 for the secondary level effluent applied to the agricultural fields. Additionally, the Discharger supplies recycled water for construction purposes and dust control, and therefore, this Order also contains reclamation requirements for the Title 22 tertiary level treated water supplied to the Discharger's clients. These limitations are necessary to reduce public health concerns and comply with the requirements of Title 22. The Discharger submitted a Title 22 Engineering Report, dated March 2006, and Technical Report for use of recycled water, dated June 2008, which were reviewed and approved by DPH.

Treated wastewater discharged for reclamation purposes not specified in this Order must be approved by the Executive Officer, or regulated under separate waste discharge requirements, and must meet the requirements of CCR, Title 22.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses." The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory

substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents, bacteria, and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent water quality objective necessary to ensure that the designated beneficial use is not adversely affected; however, as specified in the Basin Plan, the water quality "objectives do not require improvement over naturally occurring background concentrations." Therefore, this Order contains groundwater limitations for both natural background quality and water quality objectives that are necessary to protect the beneficial uses of the underlying groundwater. Thus, the water quality objectives define the least stringent limits that could apply as groundwater limitations except where natural background quality already exceeds the objective.
3. For natural background quality, the level of groundwater quality is dependant upon the background conditions. Historical data is not available to determine natural background conditions before any discharges from the Facility. Therefore, Regional Water Board staff rely on present-day sampling from upgradient monitoring locations to represent the range of water quality that otherwise would have been expected at the site before the Facility was operational. The Discharger conducted a groundwater characterization study of the City of Manteca and surrounding area, and submitted the findings on 26 September 2006, *Background Hydrogeologic Characterization Report*. This report states "One well, BG-1 [MW-AW] has been installed to evaluate background water quality upgradient of the facility. This well is located in the regionally upgradient direction of the Facility (southeast). This well appears to be near the transition area where background groundwater flow from the southeast and ground water flow from the mounded groundwater under the Facility meet, especially during the irrigations season. Water quality at this well is, however, believed to be dominated by recharge from the regionally upgradient groundwater and from seasonal rainfall." Historical regional water quality data obtained by Department of Water Resources, USEPA, and US Geological Survey from 23 monitoring wells located within a 33 square mile area is generally similar to

results obtained at the Discharger's background monitoring well MW-AW. Based on this information and findings contained in The Report, Regional Water Board concurs that MW-AW is appropriate to effectively and fully characterize the background groundwater quality conditions within the vicinity of the Facility and the Agricultural Fields.

4. Rationale for Groundwater Limitations. The Discharger's groundwater characterization study (*Background Hydrogeologic Characterization Study*, 26 September 2006, Condor Earth Technologies, Inc.) also summarized all groundwater data collected to date and concluded that "groundwater quality under beneath and down gradient of the facility appear to be of poorer quality than upgradient groundwater for total dissolved solids, nitrate, and several of the trace metals." However, since this report, the Discharger has implemented several management practices (e.g. nitrification-denitrification facilities, biosolids now sent off-site for disposal, etc.). Thus the Discharger cannot fully evaluate actual impacts on groundwater due to current land application practices without completion of additional studies. Nevertheless, this Order contains numeric and narrative land discharge specifications and reclamation specifications (Section IV), narrative and numeric groundwater limitations (Section V), Special Studies (Section VI.C), and monitoring and reporting requirements (Attachment E) to protect the quality of the underlying groundwater and the applicable uses. Additionally, this Order does not allow an increased volume of waste or an increase in wastewater discharge to land compared to the discharges allowed in Order No.R5-2004-0028. The following provides Regional Water Board's rationale for the groundwater limits contained in this Order:

- a. Salinity.** Total dissolved solids, which were found to be present in the groundwater at an average concentration range from 443 mg/L to 893 mg/L, have the potential to degrade groundwater quality at this site because there is little ability for attenuation in the shallow permeable vadose zone beneath this Facility. According to Ayers and Westcot, dissolved solids can cause yield or vegetative growth reductions of sensitive crops if present in excess of 450 mg/L in irrigation water, thereby impairing agricultural use of the water resource. However, a site-specific study must be performed to determine the appropriate TDS level to protect the agricultural beneficial use in the vicinity of the Facility. The Discharger is required to conduct a site-specific salinity study in Section VI.C.2c. of this Order. Additionally, an updated independent scientific investigation of irrigation salinity needs in the southern Delta was recently completed, and the findings and conclusion are currently under review. If applicable water quality objective to protect the agricultural use from discharges of total dissolved solids and electrical conductivity are adopted, or should the site-specific study conclusively determine an appropriate TDS level to protect the agricultural beneficial use within the vicinity of the Facility, then, this Order will be reopened and a numerical groundwater limitation for TDS and EC will be applied.
- b. Nitrate,** which was found to be present in the groundwater at an average concentration range from 0.04 mg/L to 24.9 mg/L as nitrogen, has the potential to degrade groundwater quality because there is little ability for attenuation in the shallow permeable vadose zone beneath the Facility. Furthermore, groundwater

- c. **pH**, which ranged from 6.7 to 7.4 standard units in the domestic wastewater and from 4.45 to 11.53 in the food processing wastewater, has the ability to degrade groundwater quality at this site because there is little potential for buffering in the shallow permeable vadose zone. According to Ayers and Westcot, pH less than 6.5 or greater than 8.4 can cause yield or vegetative growth reductions of sensitive crops if present in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of substances that affect pH is the narrative Chemical Constituents objective, which is applied following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation range of 6.5 to 8.4 for pH, based on Ayers and Westcot, is relevant and appropriate to apply the narrative Chemical Constituents objective to protect unrestricted agricultural use of groundwater in the absence of information to support a less protective limit.
- d. **Ammonia** has the potential to degrade groundwater quality because there is little ability for ammonia attenuation in the shallow permeable vadose zone at this site. According to Amoores and Hautala¹, who evaluated odor of ammonia in water, the odor threshold for ammonia in water is 1.5 mg/L (as NH₄). These authors studied the concentration of chemicals in air that caused adverse odors and then calculated the concentration in water that would be equivalent to that amount in air. Therefore, it is appropriate to use the data contained therein to apply the narrative Tastes and Odors water quality objective. Concentrations that exceed this value can impair the municipal or domestic use of the resource by causing adverse odors. The applicable water quality objective to protect the municipal and domestic use from discharges of odor producing substances is the narrative Tastes and Odors objective, which is applied following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 1.5 mg/L for ammonia (as NH₄), based on Amoores and Hautala, is relevant and appropriate to apply the narrative Tastes and Odors objective to protect the municipal and domestic use of groundwater.
5. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater. Based on groundwater quality data provided by the Discharger, it appears that the Discharger cannot immediately comply with the groundwater

¹ Amoores, J.E. and E. Hautala, *Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution*, Journal of Applied Toxicology, Vol. 3, No. 6, (1983).

limitations. This Order allows a time schedule for the discharge to come into compliance with the groundwater limitations. In the interim, this Order requires the Discharger to conduct a BPTC Evaluation, which is a systematic and comprehensive technical evaluation of each component of the facilities' waste management system to determine best practicable treatment or control for each the waste constituents of concern. In addition, this Order requires interim reclamation specifications that limit the seasonal average concentrations of EC, TDS, and nitrate, discharged to the agricultural fields be maintained at current facility performance.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for the Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD₅ and TSS reduction requirements). The monitoring frequencies for BOD₅, TSS, and flow (daily) have been retained from Order No. R5-2004-0028. Influent monitoring requirements for Electrical Conductivity and Total Dissolved Solids (monthly monitoring) have been included in this Order.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for temperature, pH, total Coliform Organisms, BOD₅, total Suspended Solids, total Settleable Solids, total Dissolved Solids, total Chlorine Residual, Electrical Conductivity, total Aluminum, total Copper, Ammonia Nitrogen (as N), Nitrate (as N), Nitrite (as N), Bis(2-ethylhexyl)phthalate, Carbofuran, MBAS, and total mercury have been retained from Order No. R4-2004-0028 to determine compliance with effluent limitations, or reasonable potential for these parameters.
3. Monitoring data collected over the existing permit term for chlorine, total Arsenic, total Cyanide, total Iron, total Manganese, molybdenum, Trihalomethanes, and 2,4,6-Trichlorophenol did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R4-2004-0028.

4. The SIP states that if “...all reported detection limits of the pollutant in the effluent are greater than or equal to the C [water quality criterion or objective] value, the RWQCB [Regional Water Board] shall establish interim requirements...that require additional monitoring for the pollutant...” All reported detection limits are greater than or equal to corresponding applicable water quality criteria or objectives, or at the lowest minimum level published in Appendix 4 of the SIP. Monitoring for these constituents has been included in this Order in accordance with the SIP.
5. While no effluent limitations for hardness, methylmercury, or Persistent Chlorinated Hydrocarbon Pesticides are necessary at this time in this Order, these constituents are critical in the assessment of the need for, and the development of, effluent limitations. Therefore, this Order requires monitoring of the hardness value twice per month, and monthly monitoring of Persistent Chlorinated Hydrocarbon Pesticides and methylmercury concentrations in the effluent discharge.
6. Effluent monitoring frequencies and sample types for turbidity have been increased from once per day in Order No. R5-2004-0028 to continuous monitoring in this Order since the Facility was upgraded to meter turbidity continuously.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Weekly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. Receiving water limitations for Bacteria and Pesticides are included in this Order to comply with Basin Plan objectives, and therefore, this Order requires monitoring of the number of Fecal Coliform Organisms and concentrations of Persistent Chlorinated Hydrocarbon Pesticides (biweekly and monthly monitoring, respectively) in the receiving water.

2. Groundwater

- a. CWC section 13267 states, in part, “(a) A Regional Water Board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation..., the Regional Water Board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a

reasonable relationship to the need for the report and the benefits to be obtained from the reports.” The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program is issued pursuant to CWC section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

- b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution No. 68-16 and the Basin Plan.
- c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.6.b-d. of

this Order. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. Storage Pond Monitoring

Pond monitoring is required to ensure compliance with the pond operating requirements contained in the Special Provision, section VI.C.4.a, of this Order.

3. Ultraviolet (UV) Disinfection System Monitoring

UV System monitoring and reporting are required to ensure that adequate UV dosage is applied to wastewater to inactivate pathogens (e.g. viruses in the wastewater). UV Disinfection system monitoring is imposed pursuant to requirements established by the California Department of Public Health (DPH), and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation's (AWWRF) guidelines (NWRI/AWWRF's *Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*).

4. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater.

5. Effluent and Receiving Water Characterization Study.

An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third year of this permit term, the Discharger is required to conduct monthly monitoring of the effluent at EFF-001 and of the receiving water at RSW-001 for all priority pollutants and other constituents of concern as described in Attachment H. Dioxin and furan sampling shall be performed once during the wet weather and once during the dry weather, as described in Attachment I.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority

specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. **Mercury.** This provision allows the Regional Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Regional Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- b. **Pollution Prevention.** This Order requires the Discharger to update its pollution prevention plan for mercury in accordance with CWC section 13263.3(d)(3). This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plan.
- c. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.
- d. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- e. **Thermal Plan Exception.** If the National Marine Fisheries Service determined that an exception to the Thermal Plan does not negatively impact aquatic life, then this Order may be reopened to modify the effluent and receiving water limitations for temperature.

2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from 1 October 2007 through 2 March 2009, the discharge has reasonable potential to

cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

This provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

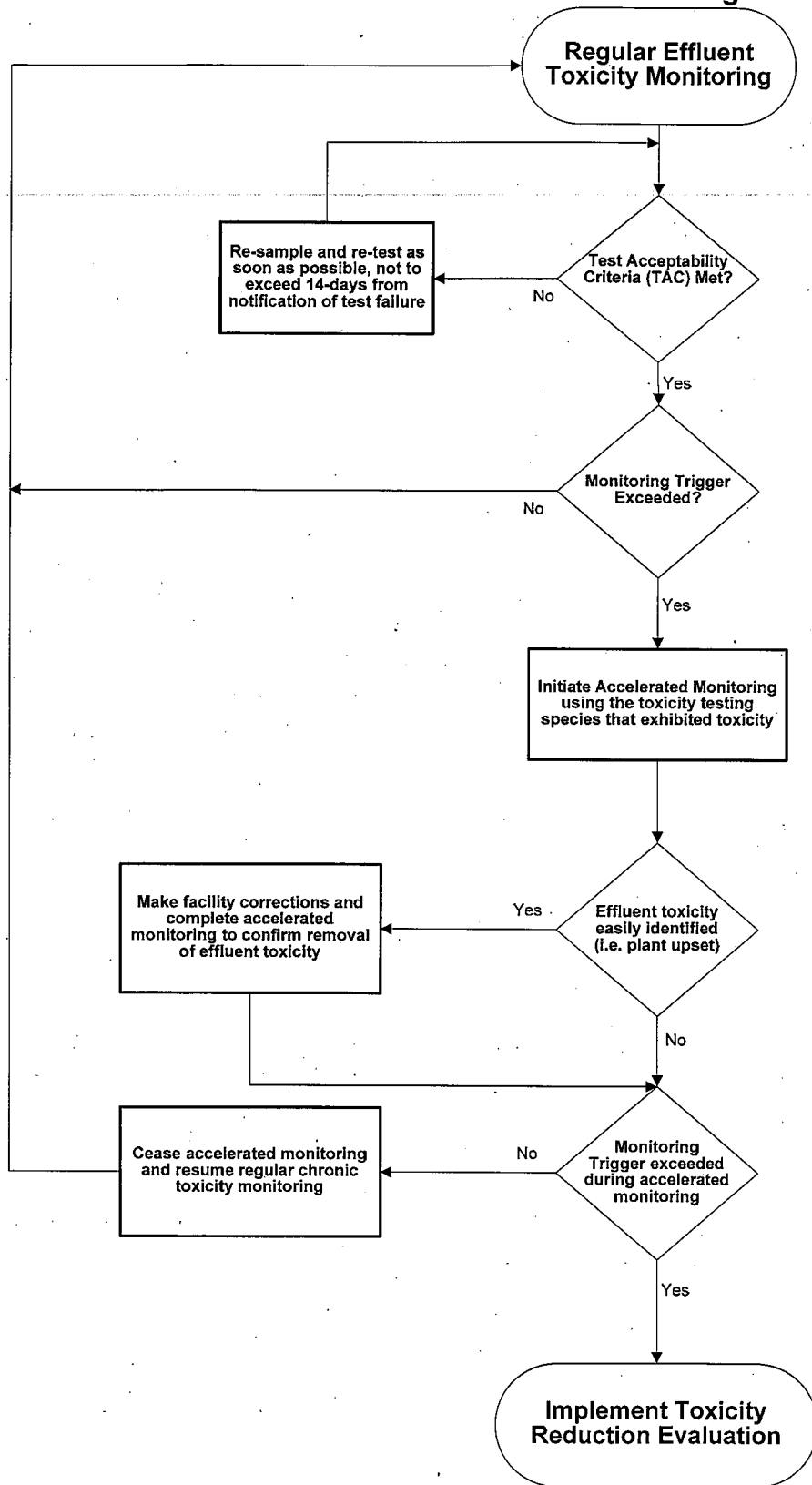
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.

- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.
- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.
- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.
- Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA-821-R-02-013, October 2002.
- Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



b. Best Practical Treatment or Control (BPTC). If the groundwater monitoring results show that the discharge of waste is threatening to cause or has caused groundwater to contain waste constituents in concentrations statistically greater than background water quality, the Discharger shall submit, within 48 months following the first year of monitoring that documents constituent concentrations increased beyond background water quality, a BPTC Evaluation Work Plan. This work plan shall set forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the Facility's waste management system to determine best practicable treatment or control for each of the waste constituents of concern. The work plan shall include a preliminary evaluation of each component of the waste management system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

3. Best Management Practices and Pollution Prevention

- a. CWC section 13263.3(d)(3) Pollution Prevention Plans.** An updated pollution prevention plan for mercury is required in this Order per CWC section 13263.3(d)(1)(C). The pollution prevention plan required in section VI.C.3.a. of this Order, shall, at a minimum, meet the requirements outlined in CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:
- i.** An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.
 - ii.** An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.
 - iii.** An estimate of load reductions that may be attained through the methods identified in subparagraph ii.
 - iv.** A plan for monitoring the results of the pollution prevention program.
 - v.** A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.
 - vi.** A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.

- vii. A description of the Discharger's existing pollution prevention programs.
- viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.
- ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

4. Construction, Operation, and Maintenance Specifications

- a. **Treatment Pond Operating Specifications.** Three treatment or storage ponds are utilized within the Facility: 1) the food processing wastewater storage and treatment pond, 2) the secondary-effluent equalization pond, and 3) the secondary-effluent storage pond. The food processing wastewater storage/treatment pond and the secondary-effluent equalization pond are lined, but the secondary-effluent storage pond is not lined and instead has rip/rap sidings and soil bottom. The operation and maintenance specifications for these ponds in this Order are necessary to protect the public and the beneficial uses of the groundwater, and to prevent nuisance conditions.
- b. **Ultraviolet (UV) Disinfection System Operating Specifications.** UV System specifications are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g. viruses in the wastewater). UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV system. Monitoring and reporting of these parameters is necessary to determine compliance with minimum dosage requirements established by the California Department of Public Health (DPH) and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWRF's "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*" first published in December 2000 and revised as a Second Edition dated May 2003. In addition, a Memorandum dated 1 November 2004 issued by DPH to Regional Board executive offices recommended that provisions be included in permits to water recycling treatment plants employing UV disinfection requiring Dischargers to establish fixed cleaning frequency if quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWRF UV Disinfection Guidelines). Minimum UV dosage and operating criteria are necessary to ensure that adequate disinfection of wastewater is achieved to protect beneficial uses.

5. Special Provisions for Municipal Facilities (POTWs Only)

- a. Pretreatment Requirements.
 - i. The federal CWA section 307(b), and federal regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water

quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.

- ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board or USEPA may take enforcement actions against the Discharger as authorized by the CWA.

- b. **Biosolids (Special Provisions VI.C.5.b-d).** The use, disposal, or storage of biosolids is regulated under federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. The Discharger is required to comply with the standards and time schedules contained in 40 CFR Part 503.

Title 27, CCR, Division 2, Subdivision 1, section 20005 establishes approved methods for the disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. This Order includes requirements to ensure the Discharger disposes of solids in compliance with State and federal regulations

- b. **Turbidity Operational Requirements.** Turbidity specifications have been included in this Order as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. 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. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. These operational turbidity specifications are necessary to assess compliance with the DPH recommended Title 22 disinfection criteria. For further information see previous section IV.C.3.d.vii of this Fact Sheet.
- c. **Collection System.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on 2 May 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and the City of Lathrop that are discharging wastewater into the

Facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

6. Other Special Provisions – N/A

7. Compliance Schedules-N/A

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through publication in The Manteca Bulletin.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on **10 September 2009**.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **8 October 2009**
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is www.waterboards.ca.gov/centralvalley where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this Facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Gayleen Perreira at (916) 464-4824.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Priority Pollutants											
Antimony	µg/L	0.5	0.2	5.6 ¹	None	None	14	4300	Narrative	6	No
Arsenic	µg/L	8	1.9	10	340	150	None	None	10	50	No
Beryllium	µg/L	<0.1	0.1	4	None	None	None	None	Narrative	4	No
Cadmium	µg/L	0.09	<0.62	1.1	²	² 1.1	None	None	Narrative	5	No
Chromium III	µg/L	3.2	2.4	89.6	² 781	² 37	None	None	Narrative	50	No
Chromium VI	µg/L	11	<5.0	11	16	11	None	None	Narrative	50	No
Copper	µg/L	4.6	14	5.6	6.8	5.6	None	None	10	10	Yes
Lead	µg/L	0.7	0.6	1.6	²	²	None	None	15	15	No
Mercury	µg/L	0.0042	0.0182	0.050	None	None	0.050	0.051	Narrative	2	Yes ³
Nickel	µg/L	2.2	3.1	22	² 198	² 22	610	4600	Narrative	100	No
Selenium	µg/L	1.3	1.8	5	20	5	None	None	Narrative	50	No
Silver	µg/L	0.86	<0.12	²	²	²	None	None	10	100	No
Thallium	µg/L	<0.2	<0.2	1.7	None	None	1.7	6.3	Narrative	2	No
Zinc	µg/L	14	50	50.4	² 50.4	² 50.4	None	None	100	5000	No
Cyanide	µg/L	<2	5	5.2	22	5.2	700	220000	10	150	No
Asbestos	MFL	7.00	9.9	<0.2	None	None	7.00	None	Narrative	7.00	No
2,3,7,8-TCDD	pg/L	<0.337	<0.669	0.013	None	None	1.30E-08	1.40E-08	Narrative	0.00001	No
Acrolein	µg/L	<0.5	<0.8	21	None	None	320	780	Narrative	None	No
Acrylonitrile	µg/L	<0.4	<0.7	0.059	None	None	0.059	0.66	Narrative	None	No ⁴
Benzene	µg/L	<0.03	<0.03	1	None	None	1.2	71	Narrative	1	No
Bromoform	µg/L	<0.07	0.2	4.3	None	None	4.3	360	Narrative	80	No
Carbon Tetrachloride	µg/L	0.1	<0.05	0.25	None	None	0.25	4.4	Narrative	0.5	No
Chlorobenzene	µg/L	<0.03	<0.03	20	None	None	680	21000	Narrative	70	No
Chlorodibromomethane	µg/L	<0.02	0.3	0.41	None	None	0.41	34	Narrative	80	No
Chloroethane	µg/L	<0.06	<0.07	16	None	None	None	None	Narrative	None	No
2-Chloroethylvinyl Ether	µg/L	<0.1	<0.2	⁵	None	None	None	None	Narrative	None	No
Chloroform	µg/L	0.9	<0.1	80	None	None	None	None	Narrative	80	No
Dichlorobromomethane	µg/L	<0.1	0.2	0.56	None	None	0.56	46	Narrative	80	No
1,1-Dichloroethane	µg/L	<0.03	<0.03	3	None	None	None	None	Narrative	5	No
1,2-Dichloroethane	µg/L	<0.07	<0.07	0.38	None	None	0.38	99	Narrative	0.5	No
1,1-Dichloroethylene	µg/L	<0.06	<0.06	0.057	None	None	0.057	3.2	Narrative	6	No
1,2-Dichloropropane	µg/L	<0.08	<0.08	0.52	None	None	0.52	39	Narrative	5	No
1,3-Dichloropropylene	µg/L	<0.05	<0.05	0.5	None	None	10	1700	Narrative	0.5	No
Ethylbenzene	µg/L	<0.02	0.08	29	None	None	3100	29000	Narrative	300	No
Methyl Bromide	µg/L	<0.07	<0.07	48	None	None	48	4000	Narrative	None	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Methyl Chloride	µg/L	0.3	0.3	11000	None	None	None	None	Narrative	None	No
Methylene Chloride	µg/L	<0.2	<0.3	4.7	None	None	4.7	1600	Narrative	5	No
1,1,2,2-Tetrachloroethane	µg/L	<0.05	<0.08	0.17	None	None	0.17	11	Narrative	1	No
Tetrachloroethylene	µg/L	<0.07	<0.07	0.8	None	None	0.8	8.85	Narrative	5	No
Toluene	µg/L	0.2	0.07	42	None	None	6800	200000	Narrative	150	No
1,2-Trans-Dichloroethylene	µg/L	<0.06	<0.06	10	None	None	700	140000	Narrative	10	No
1,1,1-Trichloroethane	µg/L	<0.04	<0.04	200	None	None	None	None	Narrative	200	No
1,1,2-Trichloroethane	µg/L	<0.1	<0.1	0.6	None	None	0.6	42	Narrative	5	No
Trichloroethylene	µg/L	<0.02	<0.02	2.7	None	None	2.7	81	Narrative	5	No
Vinyl Chloride	µg/L	<0.04	<0.04	0.5	None	None	2	525	Narrative	0.5	No
Chlorophenol	µg/L	<0.2	<0.6	0.1	None	None	120	400	Narrative	None	No ⁴
2,4-Dichlorophenol	µg/L	<0.2	<0.4	0.3	None	None	93	790	Narrative	None	No ⁴
2,4-Dimethylphenol	µg/L	<0.4	<0.5	400	None	None	540	2300	Narrative	None	No
2-Methyl-4,6-Dinitrophenol	µg/L	<0.2	<0.7	13.4	None	None	13.4	765	Narrative	None	No
2,4-Dinitrophenol	µg/L	<0.1	<0.4	70	None	None	70	14000	Narrative	None	No
2-Nitrophenol	µg/L	<0.2	<0.6	150	None	None	None	None	Narrative	None	No
4-Nitrophenol	µg/L	<0.04	<0.3	150	None	None	None	None	Narrative	None	No
3-Methyl-4-Chlorophenol	µg/L	<0.2	<0.4	30	None	None	None	None	Narrative	None	No
Pentachlorophenol	µg/L	<0.2	<0.7	0.28	4.36	3.35	0.28	8.2	Narrative	1	No
Phenol	µg/L	<0.2	<0.2	300	None	None	21000	4600000	Narrative	None	No
2,4,6-Trichlorophenol	µg/L	<0.2	<0.2	2.0	None	None	2.1	6.5	Narrative	None	No
Acenaphthene	µg/L	<0.2	<0.2	20	None	None	1200	2700	Narrative	None	No
Acenaphthylene	µg/L	<0.2	<0.3	20	None	None	None	None	Narrative	None	No
Anthracene	µg/L	<0.1	<0.3	9600	None	None	9600	110000	Narrative	None	No
Benzidine	µg/L	3	<0.1	0.00012	None	None	0.00012	0.00054	Narrative	None	No ⁴
Benzo(a)Anthracene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No ⁴
Benzo(a)Pyrene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	0.2	No ⁴
Benzo(b)Fluoranthene	µg/L	<0.2	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No ⁴
Benzo(ghi)Perylene	µg/L	<0.4	<0.3	5	None	None	None	None	Narrative	None	No
Benzo(k)Fluoranthene	µg/L	<0.2	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No ⁴
Bis(2-Chlorethoxy)Methane	µg/L	<0.2	<0.3	5	None	None	None	None	Narrative	None	No
Bis(2-Chloroisopropyl)Ether	µg/L	<0.2	<0.3	122	None	None	1400	170000	Narrative	None	No
Bis(2-Ethylhexyl)Phthalate	µg/L	2.0	2	1.8	None	None	1.8	5.9	Narrative	4	No
4-Bromophenyl Phenyl Ether	µg/L	<0.2	<0.4	122	None	None	None	None	Narrative	None	No
Butylbenzyl Phthalate	µg/L	0.3	0.2	3	None	None	3000	5200	Narrative	None	No
2-Chloronaphthalene	µg/L	<0.2	<0.5	1600	None	None	1700	4300	Narrative	None	No
4-Chlorophenyl Phenyl Ether	µg/L	<0.2	<0.4	5	None	None	None	None	Narrative	None	No
Chrysene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No ⁴
Dibenzo(a,h)Anthracene	µg/L	<0.3	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No ⁴

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
1,2-Dichlorobenzene	µg/L	<0.08	<0.08	24	None	None	2700	17000	Narrative	600	No
1,3-Dichlorobenzene	µg/L	<0.04	<0.04	400	None	None	400	2600	Narrative	None	No
1,4-Dichlorobenzene	µg/L	0.1	<0.06	5	None	None	400	2600	Narrative	5	No
3,3-Dichlorobenzidine	µg/L	<0.4	<0.6	0.04	None	None	0.04	0.077	Narrative	None	No ⁴
Diethyl Phthalate	µg/L	<0.1	<0.4	940	None	None	23000	120000	Narrative	None	No
Dimethyl Phthalate	µg/L	<0.2	<0.4	3	None	None	313000	2900000	Narrative	None	No
Di-n-Butyl Phthalate	µg/L	0.4	0.4	3	None	None	2700	12000	Narrative	None	No
2,4-Dinitrotoluene	µg/L	<0.2	<0.4	0.11	None	None	0.11	9.1	Narrative	None	No ⁴
2,6-Dinitrotoluene	µg/L	<0.2	<0.4	0.05	None	None	None	None	Narrative	None	No
Di-n-Octyl Phthalate	µg/L	<0.07	<0.4	3	None	None	None	None	Narrative	None	No
1,2-Diphenylhydrazine	µg/L	<0.2	<0.5	0.04	None	None	0.04	0.54	Narrative	None	No ⁴
Fluoranthene	µg/L	<0.1	<0.3	300	None	None	300	370	Narrative	None	No
Fluorene	µg/L	<0.2	<0.3	1300	None	None	1300	14000	Narrative	None	No
Hexachlorobenzene	µg/L	<0.2	<0.4	0.00075	None	None	0.00075	0.00077	Narrative	1	No ⁴
Hexachlorobutadiene	µg/L	<0.05	<0.05	0.44	None	None	0.44	50	Narrative	None	No
Hexachlorocyclopentadiene	µg/L	<0.4	<0.4	1	None	None	240	17000	Narrative	50	No
Hexachloroethane	µg/L	<0.5	<0.5	1.9	None	None	1.9	8.9	Narrative	None	No
Indeno(1,2,3-cd)Pyrene	µg/L	<0.3	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No ⁴
Isophorone	µg/L	<0.2	<0.4	8.4	None	None	8.4	600	Narrative	None	No
Naphthalene	µg/L	0.4	<0.3	21	None	None	None	None	Narrative	None	No
Nitrobenzene	µg/L	<0.2	<0.2	17	None	None	17	1900	Narrative	None	No
N-Nitrosodimethylamine	µg/L	<0.5	<0.5	0.00069	None	None	0.00069	8.1	Narrative	None	No ⁴
N-Nitrosodi-n-Propylamine	µg/L	<0.2	<0.7	0.005	None	None	0.005	1.4	Narrative	None	No ⁵
N-Nitrosodiphenylamine	µg/L	<0.1	<0.3	5	None	None	5.0	16	Narrative	None	No
Phenanthrene	µg/L	<0.1	<0.3	5	None	None	None	None	Narrative	None	No
Pyrene	µg/L	<0.06	<1	960	None	None	960	11000	Narrative	None	No
1,2,4-Trichlorobenzene	µg/L	<0.1	<0.1	5	None	None	None	None	Narrative	5	No
Aldrin	µg/L	<0.002	0.005	0.00013	3	None	0.00013	0.00014	Narrative	None	No ⁴
alpha-BHC	µg/L	<0.005	<0.005	0.0039	None	None	0.0039	0.013	Narrative	None	No ⁴
beta-BHC	µg/L	0.043	<0.002	0.014	None	None	0.014	0.046	Narrative	None	No
gamma-BHC	µg/L	<0.005	<0.005	0.019	0.095	None	0.019	0.063	Narrative	0.2	No
delta-BHC	µg/L	<0.002	0.008	5	None	None	None	None	Narrative	None	No
Chlordane	µg/L	<0.01	<0.01	0.00057	2.4	0.0043	0.00057	0.00059	Narrative	0.1	No ⁴
4,4-DDT	µg/L	<0.005	<0.005	0.00059	1.1	0.001	0.00059	0.00059	Narrative	None	No ⁴
4,4-DDE	µg/L	<0.005	<0.005	0.00059	None	None	0.00059	0.00059	Narrative	None	No ⁴
4,4-DDD	µg/L	<0.01	<0.01	0.00083	None	None	0.00083	0.00084	Narrative	None	No ⁴
Dieldrin	µg/L	<0.005	<0.005	0.00014	0.24	0.056	0.00014	0.00014	Narrative	None	No ⁴
alpha-Endosulfan	µg/L	<0.005	<0.005	0.056	0.22	0.056	110	240	Narrative	None	No
beta-Endosulfan	µg/L	<0.005	<0.005	0.056	0.22	0.056	110	240	Narrative	None	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Endosulfan Sulfate	µg/L	<0.01	<0.01	0.056	None	None	110	240	Narrative	None	No
Endrin	µg/L	<0.005	<0.005	0.036	0.086	0.036	0.76	0.81	Narrative	2	No
Endrin Aldehyde	µg/L	0.01	<0.005	0.76	None	None	0.76	0.81	Narrative	None	No
Heptachlor	µg/L	<0.005	<0.005	0.00021	0.52	0.0038	0.00021	0.00021	Narrative	0.01	No ⁴
Heptachlor Epoxide	µg/L	<0.005	<0.005	0.0001	0.52	0.0038	0.0001	0.00011	Narrative	0.01	No ⁴
PCBs sum	µg/L	<0.1	<0.1	0.00017	None	0.014	0.00017	0.00017	Narrative	0.5	No ⁴
Toxaphene	µg/L	<0.1	<0.1	0.0002	0.73	0.0002	0.00073	0.00075	Narrative	3	No ⁴
Non-Conventional Pollutants											
Aluminum	µg/L	124	3300	200	750	87	None	None	Narrative	200	Yes
Ammonia	µg/L	2.1	0.08	0.9	5.6	1.1	None	None	Narrative	None	Yes
Chloride	mg/L	140	150	230	860	230				250	No
Electrical Conductivity	µg/L	827	949	1000	None	None	None	None	Narrative	900	Yes ⁴
Iron (dissolved)	µg/L	90	190	300	None	None	None	None	300	None	No
Manganese (dissolved)	µg/L	20	47	50	None	None	None	None	50	50	Yes
Methylene Blue Activated Substance	µg/L	290	None	500	None	None	None	None	Narrative	500	Yes ³
Molybdenum	µg/L	5.7	4.1	10	None	None	None	None	10	None	No
Nitrate	mg/L	10.4	6.4	10	None	None	None	None	Narrative	10	Yes
Nitrite	mg/L	0.17	0.11	1	None	None	None	None	Narrative	1	Yes ³

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

MFL = Million Fibers per Liter

NA = Not Available

ND = Non-detect

Footnotes:

(1) NAWQOC – Water & Fish

(2) Refer to Section VI.C.2.c of Attachment F in this Order

(3) Demonstrates Reasonable Potential based on other information

(4) Analyzed using the lowest ML for approved methods

(5) No established criteria

ATTACHMENT H – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

- I. Background.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.waterboards.ca.gov/iswp/index.html>). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Regional Water Board is requiring the following monitoring:
- A. Drinking water constituents.** Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.
 - B. Effluent and receiving water temperature.** This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.
 - C. Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.
 - D. Dioxin and furan sampling.** Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment J. Pursuant to Section 13267 of the California Water Code, this Order includes a requirement for the Discharger to submit monitoring data for the effluent and receiving water as described in Attachment J.
- II. Monitoring Requirements.**
- A. Monthly Monitoring.** Monthly priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. Monthly monitoring shall be conducted for 1 year (12 consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Regional Water Board, during the fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Semi-annual Monitoring (dioxins and furans only). Semi-annual monitoring is required for dioxins and furans, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Regional Water Board with the quarterly priority data at the completion of the Effluent and Receiving Water Characterization Study, and during the fourth year of the permit term.

C. Concurrent Sampling. Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

D. Sample type. All effluent samples shall be taken as 24-hour flow proportioned composite samples. All receiving water samples shall be taken as grab samples.

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2-Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
23	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/GCMS
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as CaCO ₃)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO ₃)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	°F		
	Total Dissolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

- (1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.
- (2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.
- (3) - For haloethers
- (4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22°C.
- (5) - For nitrophenols.
- (6) - For chlorinated naphthalenes.
- (7) - For phthalate esters.
- (8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.
- (9) - Criteria for sum of alpha- and beta- forms.
- (10) - Criteria for sum of all PCBs.
- (11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:
 - Method 1669: Sampling Ambient Water for Trace Metals at USEPA Water Quality Criteria Levels, USEPA; and
 - Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence, USEPA

III. Additional Study Requirements

A. Laboratory Requirements. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code 13176 and must include quality assurance/quality control data with their reports (ELAP certified).

B. Criterion Quantitation Limit (CQL). The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Table I-1 contains suggested analytical procedures. The Discharger is not required to

use these specific procedures as long as the procedure selected achieves the desired minimum detection level.

C. Method Detection Limit (MDL). The method detection limit for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).

D. Reporting Limit (RL). The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

E. Reporting Protocols. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

1. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
2. Sample results less than the reported RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
3. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or - a percentage of the reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.
4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

F. Data Format. The monitoring report shall contain the following information for each pollutant:

1. The name of the constituent.
2. Sampling location.
3. The date the sample was collected.
4. The time the sample was collected.
5. The date the sample was analyzed. For organic analyses, the extraction data will also be indicated to assure that hold times are not exceeded for prepared samples.
6. The analytical method utilized.

7. The measured or estimated concentration.
8. The required Criterion Quantitation Limit (CQL).
9. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
10. The laboratory's lowest reporting limit (RL).
11. Any additional comments.

ATTACHMENT I – DIOXIN AND FURAN SAMPLING

The CTR includes criteria for 2,3,7,8-tetrachlorodibenzo-pdioxin (2,3,7,8-TCDD). In addition to this compound, there are many congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) that exhibit toxic effects similar to those of 2,3,7,8-TCDD. The USEPA has published toxic equivalency factors (TEFs) for 17 of the congeners. The TEFs express the relative toxicities of the congeners compared to 2,3,7,8-TCDD (whose TEF equals 1.0). In June 1997, participants in a World Health Organization (WHO) expert meeting revised TEF values for 1,2,3,7,8-PentaCDD, OctaCDD, and OctaCDF. The current TEFs for the 17 congeners, which include the three revised values, are shown below:

Toxic Equivalency Factors (TEFs) for 2,3,7,8-TCDD Equivalents

Congener	TEF
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

The Discharger shall conduct effluent and receiving water monitoring for the 2,3,7,8-TCDD congeners listed above to assess the presence and amounts of the congeners being discharged and already present in the receiving water. Effluent and upstream receiving water shall be monitored for the presence of the 17 congeners once during dry weather and once during wet weather for 1 year within the term of the study.

The Discharger shall report, for each congener, the analytical results of the effluent and receiving water monitoring, including the quantifiable limit and the method detection limit, and the measured or estimated concentration.

In addition, the Discharger shall multiply each measured or estimated congener concentration by its respective TEF value and report the sum of these values.