CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. <R5-2009-XXXX>
NPDES NO. CA0081558
WASTE DISCHARGE REQUIREMENTS FOR
CITY OF MANTECA and DUTRA FARMS, INC.
CITY OF MANTECA WASTEWATER QUALITY CONTROL FACILITY
SAN JOAQUIN COUNTY

The following Dischargers are subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	City of Manteca, and Dutra Farm Inc. for land parcel APN 241-320-47
Name of Facility	City of Manteca Wastewater Quality Control Facility
Facility Address	2450 West Yosemite Avenue
	Manteca, CA 95337
	San Joaquin County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the City of Manteca from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Tertiary treated municipal effluent	37 º 46’ 45” N	121 º 18’ 0” W	San Joaquin River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**<Adoption Date>**
This Order shall become effective on:	**<Effective Date>**
This Order shall expire on:	**<Expiration Date>**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date**

I, **PAMELA C. CREEDON**, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **<Adoption Date>**.

_____
PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

The following Dischargers are subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	City of Manteca, and Dutra Farms Inc. for land parcel APN 241-320-47
Name of Facility	City of Manteca Wastewater Quality Control Facility
Facility Address	2450 West Yosemite Avenue
	Manteca, CA 95337
	San Joaquin County
Facility Contact, Title, and Phone	Tom C. Foley, Wastewater Superintendent, (209) 456-8472
Mailing Address	1001 West Center Street Manteca CA 95337
Type of Facility	Publicly Owned Treatment Works
Facility Design Flow	9.87 million gallons per day (mgd) (with expansion to 17.5 mgd)

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Regional Water Board), finds:

A. Background. The City of Manteca (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2004-0028 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081558. The Discharger submitted a Report of Waste Discharge, dated August 2008, and applied for a NPDES permit renewal to increase the discharge from 9.87 million gallons per day (mgd) to 17.5 mgd of tertiary-level treated wastewater from City of Manteca Wastewater Quality Control Facility, hereinafter Facility. The application was deemed complete on 11 December 2008.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates a Publicly-Owned Domestic Wastewater Treatment Works. The Discharger provides sewerage service for the City of Manteca and a portion of the City of Lathrop, serving a population of approximately 80,500. The Facility is divided into two parallel treatment systems, the north and south treatment systems . Primary treatment, which is identical in both systems, consists of mechanical screening, aerated grit removal, and primary sedimentation. At the north plant, the primary effluent undergoes additional treatment through two biotowers with high-rate plastic media. The secondary treatment systems for both treatment systems are the same, which consists of conventional activated sludge, including nitrification-denitrification, followed by secondary sedimentation.

Grit and screenings are hauled offsite to a landfill for disposal. Sludge removed from primary and secondary sedimentation is thickened by dissolved air floatation, and then

pumped to anaerobic digesters. After digestion, the treated sludge is dewatered by centrifuge, and then removed offsite for disposal in a privately-owned solid waste landfill.

Undisinfected secondary effluent is mixed with food processing waste and applied to approximately 190 acres of the Discharger-owned agricultural fields and 70 acres of Dutra Farms Inc. owned agricultural fields. Dutra Farms Inc. is named as a discharger in this Order and is responsible for the proper application and management of the wastewater on its land, APN 241-320-47. All the agricultural fields grow fodder and feed crops for dairy feed. Both Dischargers are jointly responsible for maintaining the pipeline from the Facility to the Dutra Farms property.

Excess secondary effluent undergoes tertiary treatment through coagulation and flocculation, cloth media filtration, and ultraviolet light pathogen deactivation (UV Disinfection). Disinfected tertiary level treated effluent is discharged from Discharge Point No. 001 (see table on cover page) to the San Joaquin River. The San Joaquin River is a water of the United States, within the Sacramento-San Joaquin Delta. The Discharger also provides disinfected tertiary-level treated effluent for reuse for construction purposes (e.g. dust control).

Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility and a map of the Discharger~~'s agricultural fields. This Order does not contain a map of~~ and Dutra Farms Inc.'s agricultural fields~~, which is located south of the Facility~~.

C. Legal Authorities. This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (CWC; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The

discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.

G. Water Quality-Based Effluent Limitations (WQBELs). Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, that are necessary to achieve water quality standards. The Regional Water Board has considered the factors listed in CWC section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a Water Quality Control Plan, Fourth Edition (Revised October 2007), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) on 1 September 1998 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the San Joaquin River within the Sacramento-San Joaquin Delta are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	San Joaquin River within the Sacramento-San Joaquin Delta	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PROC); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); spawning, reproduction, and/or early development, warm (SPWN); wildlife habitat (WILD); and navigation (NAV).
	Underlying Ground waters	Municipal and domestic supply (MUN), agricultural supply and stock watering (AGR), industrial process water supply (PROC), and industrial service supply (IND).

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." The southern portion of the Sacramento-San Joaquin Delta Waterways is listed as a WQLS for chloropyrifos, DDT, diazinon, electrical conductivity, exotic species, group A pesticides, mercury, and unknown toxicity in the 303(d) list of impaired water bodies. Effluent limitations for mercury, electrical conductivity, and acute and chronic whole effluent toxicity are included in this Order.

The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on 18 May 1972, and amended this plan on 18 September 1975. This plan contains temperature objectives for surface waters. This Order contains effluent and receiving water limitations, which are necessary to implement the Thermal Plan.

The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in May 1995 by the State Water Board superseding the 1991 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

The Bay-Delta Plan attempts to create a management plan that is acceptable to the stakeholders while at the same time is protective of beneficial uses of the Sacramento – San Joaquin Delta. The State Water Board adopted Decision 1641 (D-1641) on 29 December 1999. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of diversion of the Central Valley Project and the

State Water Project in the Southern Delta, and approves a petition to change places of use and purposes of use of the Central Valley Project. The water quality objectives of the Bay-Delta Plan are implemented as part of this Order.

Requirements of this Order specifically implement the applicable Water Quality Control Plans.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. **Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Water Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment (CBE) et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was 25 September 1995 (see Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with USEPA policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to CWC section 13300 or a Cease and Desist Order pursuant to CWC section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of

each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules and interim effluent limitations or discharge specifications.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. (40 CFR 131.21 and 65 FR 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. 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 BOD, TSS, and pH. The WQBELs consist of restrictions on aluminum, ammonia, total coliform organisms, copper, electrical conductivity, methylene blue active substances, and nitrate plus nitrite. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for pathogens to meet numeric objectives or protect beneficial uses.

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

[Clean Water] Act" 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 technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. **Antidegradation Policy**. 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and Resolution No. 68-16.

O. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent than those in Order No. R5-2004-0028. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

P. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

Q. **Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

R. **Standard and Special 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. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in sections IV.B, IV.C, V.B, and VI.C.4.a of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

T. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

U. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED, that Waste Discharge Requirements Order No. R5-2004-0028 and Cease and Desist Order No. R5-2004-0029 are rescinded, and also coverage under Resolution No. R5-2008-0182 is terminated, upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the CWC.

D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

E. Discharge or application of waste classified as 'hazardous', as defined in CCR, Title 23, Section 2521(a), or 'designated', as defined in CWC Section 13173, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations (9.87 mgd) – Discharge Point No. 001

a. **Effective immediately,** the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program:

Table 6. Effluent Limitations (9.87 mgd)

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C (BOD_5)	mg/L	10	15	20		
	lbs/day[1]	820	1235	1647		
Total Suspended Solids	mg/L	10	15	20		
	lbs/day[1]	820	1235	1647		
pH	standard units				6.5	8.0
Total Coliform Organisms	MPN/100ml					240
Aluminum, Total Recoverable	µg/L	407		750		
Copper, Total Recoverable	µg/L	10		13		
Silver, Total Recoverable	µg/L	1.1		2.0		
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	115		280		
Electrical Conductivity (1 April to 31 August)	µmhos/cm	700				
Electrical Conductivity (1 Sept to 31 March)	µmhos/cm	1000				

1 Based on an average dry weather ~~design~~ flow of 9.87 mgd

b. **Percent Removal.** The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and

ii. 90%, median for any three consecutive bioassays.

d. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

e. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:

i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median; and
ii. 23 MPN/100 mL, more than once in any 30-day period.

f. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 9.87 mgd.

g. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

h. **Aluminum.** The discharge of total recoverable aluminum shall not exceed a concentration of 200 µg/L as a~~n~~calendar annual average

2. **Final Effluent Limitations (17.5 mgd) – Discharge Point No. 001**

a. **Effective upon compliance with Special Provision VI.C.6.c,** the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program:

Table 7. Effluent Limitations (17.5 mgd)

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C (BOD_5)	mg/L	10	15	20		
	lbs/day[1]	1460	2190	2920		
Total Suspended Solids	mg/L	10	15	20		
	lbs/day[1]	1460	2190	2920		
pH	standard units				6.5	8.0
Total Coliform Organisms	MPN/100ml					240
Aluminum, Total Recoverable	µg/L	407		750		
Copper, Total Recoverable	µg/L	10.2		13.0		
Silver, Total Recoverable	µg/L	1.1		2.0		
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	204		497		

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Electrical Conductivity (1 April to 31 August)	µmhos/cm	700				
Electrical Conductivity (1 Sept to 31 March)	µmhos/cm	1000				

1 Based on an average dry weather ~~design~~ flow of 17.5 mgd

b. **Percent Removal.** The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   i. 70%, minimum for any one bioassay; and
   ii. 90%, median for any three consecutive bioassays.

d. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

e. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:

   i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median; and
   ii. 23 MPN/100 mL, more than once in any 30-day period.

f. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 17.5 mgd.

g. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

h. **Aluminum.** The discharge of total recoverable aluminum shall not exceed a concentration of 200 µg/L as a~~n~~ calendar annual average

3. **Interim Effluent Limitations**

   a. **Mercury.** The total annual mass discharge of total mercury shall not exceed 0.69 pounds per calendar year. This interim performance-based limitation shall be in effect until the Regional Water Board establishes final effluent limitations after adoption of the Sacramento-San Joaquin Delta Methylmercury TMDL.

B. Land Discharge Specifications

The Discharger, and Dutra Farms Inc. at land parcel APN 241-320-47, shall maintain compliance with the following land discharge specifications. Loading calculations shall be performed as specified in the attached MRP (Attachment E), Section X.B.3.

1. **Hydraulic Loading.** The hydraulic loading to any individual agricultural field (As shown in Attachment C-2) shall be at agronomic rates considering the crop, soil, climate, and irrigation management system, and designed to minimize percolation of wastewater constituents below the evaporative and root zone (i.e., deep percolation).

2. **Total Nitrogen.** The total nitrogen loading to any individual agricultural field (As shown in Attachment C-2) shall not exceed the agronomic rate for plant available nitrogen (PAN) for the type of crop to be grown, as specified in the most recent edition of the Western Fertilizer Handbook.

3. **BOD_5** The BOD_5 loading rate to any individual agricultural field (As shown in Attachment C-2) shall ensure compliance with Discharge Prohibition III.C and Groundwater Limitations V.B. and shall not exceed 300 lbs/acre/day as a daily maximum.

4. The discharge of waste classified as "hazardous" as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or "designated", as defined in section 13173 of the CWC, is prohibited.

5. Wastewater may not be used for irrigation purposes during periods of significant precipitation, and for at least 24 hours after cessation of signification precipitation, or when soils are saturated. Significant rainfall is defined as 0.25 inches during a 24-hr period.

6. Stormwater runoff from the agricultural fields shall not be discharged to any surface waters or surface water drainage courses within thirty days of the last application of irrigation waters.

7. All tailwater shall be managed as described in the Fact Sheet (Attachment F, page F-5).

8. Areas irrigated with effluent shall be managed to prevent breeding of mosquitoes. More specifically:

   a. All applied irrigation water must infiltrate completely within 24 hours.

   b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.

   c. Low-pressure and un-pressurized pipelines and ditches, which are accessible to mosquitoes, shall not be used to store reclaimed water.

9. Land discharge of effluent shall comply with the following setback requirements:

Setback Definition[1]	**Minimum Irrigation Setback (feet)**
Edge of land application area to property boundary	50
Edge of land application area to a public road	50

Edge of land application area to an irrigation well	100
Edge of land application area to a domestic well	100
Edge of land application area to a manmade or natural surface water drainage course [2] or spring	50

[1] As defined by the wetted area produced during irrigation.
[2] Excluding ditches used exclusively for tailwater return

C. Reclamation Specifications

1. All uses of reclaimed water shall be in compliance with *Title 22, Division 4, Chapter 3. Water Recycling Criteria, et.seq.*

2. All reclaimed water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities, and these shall be of a type, or secured in a manner, that permits operation by authorized personnel only.

3. **For Undisinfected Secondary Treated Effluent either discharged to land or to the ponds, effective immediately**, its use shall be limited to surface irrigation of fodder, fiber, or seed crops. Additionally, the Discharger shall maintain compliance with the following limitations, with compliance measured at Monitoring Location LND-002 as described in the Monitoring and Reporting Program.

Table 8. Undisinfected Secondary Reclamation Discharge Specifications

Parameter	Units	Discharge Specifications		
		Average Monthly	Average Weekly	Maximum Daily
BOD_5	mg/L	30		45
Settleable Solids	ml/L	0.2		0.5

4. **For Disinfected Title 22 Tertiary-level Treated Effluent, effective immediately**, its use shall be limited for construction purposes and dust control. Additionally, the Discharger shall meet conditions specified in California Department of Public Health's (DPH) approval letter dated 2 September 2008 and maintain compliance with the following limitations, with compliance measured at Monitoring Location REC-001 as described in the Monitoring and Reporting Program.

Table 9. Disinfected Title 22 Tertiary-level Reclamation Discharge Specifications

Parameter	Units	Discharge Specifications		
		Average Monthly	Average Weekly	Maximum Daily
BOD_5	mg/L	10	15	20
Total Coliform Organisms	MPN/ 100 ml		2.2[1]	23/240[2]

1. Weekly Median
2. Does not exceed 23 in more than one sample in any 30-day period. No sample shall exceed 240

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the San Joaquin River:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL. **]**

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen.** The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time.

6. **Electrical Conductivity.** The running 30-day average electrical conductivity to exceed 700 µmhos/cm (1 April through 31 August) or 1000 µmhos/cm (1 September through 31 March).

7. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

8. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

9. **pH.** The pH to be depressed below 6.5, raised above 8.5.

10. **Pesticides:**

    a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;

    b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

    c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;

d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);

e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;

f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor

g. Thiobencarb to be present in excess of 1.0 µg/L.

11. Radioactivity:

a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

12. Suspended Sediments. The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

13. Settleable Substances. Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

14. Suspended Material. Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

15. Taste and Odors. Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

16. Temperature. The Thermal Plan is applicable to this discharge. The Thermal Plan requires that the discharge shall not cause the following in the San Joaquin River:

a. The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point; and

b. A surface water temperature rise greater than 4°F above the natural temperature of the receiving water at any time or place;

17. Toxicity. Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

18. Turbidity. The turbidity to increase as follows:

a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs;

b. More than 20 percent where natural turbidity is between 5 and 50 NTUs;

c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

d. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

1. Release of waste constituents from any portion of the Facility shall not cause groundwater to:

a. Contain any of the following constituents in concentrations greater than Water Quality Objectives or natural background quality, whichever is greater in Table 10 below, **effective 1 October 2014**.

Table 10. Groundwater Limitations

Constituent	Units	Limitation	
		Water Quality Objectives	Natural Background Quality[3]
Total Coliform Organisms	MPN/100 mL	<2.2	<2
Electrical Conductivity @ 25°C[1]	µmhos/cm	TBD[2]	420
Total Dissolved Solids[1]	mg/L	TBD[2]	352
Nitrite Nitrogen, Total (as N)	mg/L	1	
Nitrate Nitrogen, Total (as N)	mg/L	10	15.3
Ammonia, Total (as N)	mg/L	1.5	0.13

[1] A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

[2] The water quality objectives for electrical conductivity and total dissolved solids are to be determined based on the site-specific study performed by the Discharger, as required in Section VI.C.2.c.

[3] Background threshold values based on statistical calculation of representative upgradient monitoring well(s).

b. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.

c. Impart taste, odor, chemical constituents, toxicity, or color that creates nuisance or impairs any beneficial use.

2. Interim reclamation discharge specifications. Effective immediately until 30 September 2014, the Discharger shall maintain compliance with the following limitations, with compliance measured at Monitoring Location LND-001 as described in the Monitoring and Reporting Program.

Table 11. Interim reclamation discharge specifications

Parameter	Units	Seasonal Average[1]
Electrical Conductivity	µmhos/cm	1000
Total Dissolved Solids	mg/L	500

[1]. Seasonal average calculated based on data from 1 May through 30 November

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

i. violation of any term or condition contained in this Order;

ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for

modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional Water Board's own motion.

c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Regional Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

ii. controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

i. Safeguard to electric power failure:

i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

j. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision contained in section VI.A.2.i. of this Order.

The technical report shall:

i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

m. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).

o. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D section V.E.1. [40 CFR 122.41(l)(6)(i)].

p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties,

and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

q. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. **Mercury.** If a TMDL program is adopted for mercury, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

c. **Pollution Prevention.** This Order requires the Discharger to update its pollution prevention plan for mercury in accordance with CWC section 13263.3(d)(3). Based on a review of the pollution prevention plan, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

e. **Water Effects Ratios (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.

f. **Thermal Plan Exception.** Should the National Marine Fisheries Service concur with the Discharger's thermal impact study, *City of Manteca Wastewater Quality Control Facility Thermal Plan Exception Analysis Final Report* (February 2006), this Order may be reopened to modify Effluent Limitation IV.A.1.d. and IV.A.2.d. and Receiving Water Limitation V.A.16.

g. **Site-specific Salinity Study**. This Order requires the Discharger to conduct a site-specific study to determine the appropriate electrical conductivity (EC) and total dissolved solids (TDS) levels to protect the beneficial use of agricultural supply for the most salt sensitive crops in areas irrigated with groundwater in the vicinity of the Facility. Based on the results of this study, this Order may be reopened to modify or add requirements or limitations in Discharge Specifications IV.B and Receiving Water Limitation V.B.

h. **The Bay-Delta Plan**. The South Delta salinity standards are currently under review by the State Water Board in accordance with implementation provisions contained in the Bay-Delta Water Quality Control Plan. This review in process includes an updated independent scientific investigation of irrigation salinity needs in the southern Delta. If applicable water quality objectives of the Bay-Delta Plan are ~~adopted~~revised, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate.

i. **Regional Monitoring Program.** The State and Regional Water Boards are committed to creation of a coordinated Regional Monitoring Program to address receiving water monitoring in the Delta for all Water Board regulatory and research programs. When a Regional Monitoring Program becomes functional, this permit may be reopened to make appropriate adjustments in permit-specific monitoring to coordinate with the Regional Monitoring Program."

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Chronic Whole Effluent Toxicity. For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits a pattern of toxicity exceeding the numeric toxicity monitoring trigger during accelerated monitoring established in this Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Workplan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. The Discharger submitted the final TRE Workplan to the Regional Water Board on 29 September 2005, which was approved by Regional Water Board staff. This Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. Accelerated Monitoring and TRE Initiation. When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

ii. Numeric Toxicity Monitoring Trigger. The numeric toxicity monitoring trigger to initiate a TRE is > 1 TU_C (where TU_C = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE when the effluent exhibits a pattern of toxicity.

iii. Accelerated Monitoring Specifications. If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14 days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four (4) chronic toxicity tests conducted once every 2 weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

(a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

(b) If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:

(1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;

(2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

(3) A schedule for these actions.

b. Best Practical Treatment or Control (BPTC). Based on studies provided by the Discharger, groundwater monitoring results have shown that the discharge of waste to land is threatening to cause or has caused groundwater to contain waste constituents in concentrations statistically greater than background water quality. Therefore, the Discharger shall submit, **within 12 months following adoption of this Order**, a BPTC Evaluation Work Plan that sets forth a scope and schedule for 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. 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 2 years.

c. Site-Specific Salinity Study. The Discharger shall complete and submit to the Regional Water Board a report on the results of a site-specific investigation of appropriate electrical conductivity (EC) and total dissolved solids (TDS) levels to protect the beneficial use of agricultural supply for the most salt sensitive crops in areas irrigated with groundwater in the vicinity of the Facility under reasonable worst-case conditions. The study shall determine the sodium adsorption ratio of soils in the affected area, the alkalinity of soils to whether site specific conditions would reduce fluoride impacts, and the effects of rainfall and flood-induced leaching. The study shall evaluate how climate, soil chemistry, background groundwater quality, rainfall, and flooding affect salinity requirements. Based on these factors, as well as economic and environmental impacts (such as increased irrigation water usage, groundwater hydraulics and degraded water

quality), the study shall recommend site-specific numeric values for EC and TDS that provide reasonable protection for the agricultural supply use designation for the groundwater. The Regional Water Board will evaluate the recommendations, select appropriate values, including consideration of the secondary MCL for EC and TDS for the protection of MUN and reopen the Order, as necessary, to revise the groundwater effluent limitations for EC and TDS. The Discharger shall comply with the following time schedule to complete the study and annual progress reports shall be submitted to the Executive Officer in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1):

Task	Compliance Date
Submit Work Plan	9 Months from Adoption of this Order
Submit Completed Study Report	3 Years from Adoption of this Order

3. Best Management Practices and Pollution Prevention

a. Pollution Prevention Plan for Mercury. The Discharger shall update and implement its pollution prevention plan (PPP) for mercury (*City of Manteca Pollution Prevention Plan*, 30 June 2005), in accordance with CWC section 13263.3(d)(1)(D). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet (Attachment F section VII.B.3.a). The Discharger shall submit the revised pollution prevention plan to the Regional Water Board **within 9 months following adoption of this Order**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E section X.D.1.).

4. Construction, Operation and Maintenance Specifications

a. Treatment Pond Operating Requirements.

i. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

ii. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

(a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

(b) Weeds shall be minimized.

(c) Dead algae, vegetation, and debris shall not accumulate on the water surface.

iii. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow) as a monthly average and never less than 1 foot at any time.

iv. As a means of discerning compliance with Discharge Prohibition III.C, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/L.

v. Ponds shall not have a pH less than 6.5 or greater than 9.0.

b. Ultraviolet (UV) Disinfection System Operating Requirements. The Discharger shall operate the UV disinfection system to provide a minimum UV dose of 100 millijoules per square centimeter (mJ/cm^2) at peak daily flow, unless otherwise approved by the California Department of Public Health.

i. The Discharger shall provide continuous, reliable monitoring of flow, UV transmittance, UV power, and turbidity.

ii. The Discharger shall operate the treatment system to insure that turbidity prior to disinfection shall not exceed specifications in Provision VI.C.5.e. of this Order

iii. The UV transmittance (at 254 nanometers) in the wastewater exiting the UV disinfection system shall not fall below 55 percent of maximum at any time.

iv. The quartz sleeve and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.

v. The sleeves must be cleaned periodically as necessary to meet the requirements.

vi. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.

vii. The facility must be operated in accordance with an operations and maintenance program that assures adequate disinfection.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements.

i. The Discharger shall implement its approved pretreatment program and the program shall be 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.

ii. The Discharger shall enforce the Pretreatment Standards promulgated under sections 307(b), 307(c), and 307(d) of the CWA. The Discharger shall perform the pretreatment functions required by 40 CFR Part 403 including, but not limited to:

(a) Adopting the legal authority required by 40 CFR 403.8(f)(1);

(b) Enforcing the Pretreatment Standards of 40 CFR 403.5 and 403.6;

(c) Implementing procedures to ensure compliance as required by 40 CFR 403.8(f)(2); and

(d) Providing funding and personnel for implementation and enforcement of the pretreatment program as required by 40 CFR 403.8(f)(3).

iii. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

(a) Wastes which create a fire or explosion hazard in the treatment works;

(b) Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

(c) Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

(d) Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

(e) Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Water Board approves alternate temperature limits;

(f) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

(g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and:

(h) Any trucked or hauled pollutants, except at points predesignated by the Discharger.

iv. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

(a) Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or:

(b) Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

b. Sludge/Biosolids Discharge Specifications

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.

iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

iv. The use and disposal of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Regional Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

c. Biosolids Disposal Requirements

i. The Discharger shall comply with the Monitoring and Reporting Program for biosolids disposal contained in Attachment E.

ii. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change.

iii. The Discharger is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.

d. Biosolids Storage Requirements

i. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.

ii. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.

iii. Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.

iv. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate.

e. Turbidity Operational Requirements. The Discharger shall operate the treatment system to ensure that the turbidity measured at EFF-001, as described in the MRP (Attachment E), shall not exceed:

i. 2 NTU, as a daily average;
ii. 5 NTU, more than 5% of the time within a 24-hour period; and
iii. 10 NTU, at any time.

f. Collection System. On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003 and any future revisions thereto. Order No. 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. The Discharger has applied for and has been approved for coverage under State Water Board Order No. 2006-0003 for operation of their wastewater collection system.

Regardless of the coverage obtained under Order No. 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR 122.41(e)], report any non-compliance [40 CFR 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR 122.41(d)].

6. Other Special Provisions

a. Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the Department of Public Health (DPH; formerly the Department of Health Services) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

b. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

c. Phase IV Upgrade and Expansion Project. The Discharger has requested an expansion of allowable flows to be discharged to San Joaquin River. The permitted average daily discharge flow may increase to 17.5 mgd upon compliance with the following conditions:

i. **Effluent and Receiving Water Limitation Compliance.** The discharge shall demonstrate compliance with Effluent Limitations IV.A. and Receiving Surface Water Limitations V.A.

ii. **Facility Expansions.** The Discharger shall have completed construction of Phase IV Upgrade and Expansion Project, as described in the Discharger's Report of Waste Discharge, August 2008.

iii. **Request for Increase.** The Discharger shall submit to the Regional Water Board a request for an increase in the permitted discharge flow rate, which demonstrates compliance with items i. through ii. of this provision. The increase in the permitted discharge flow rate shall not be effective until the Executive Officer verifies compliance with Special Provisions VI.C.6.c. and approves the Discharger's request.

7. Compliance Schedules

a. Compliance Schedules for Final Groundwater Limitations and Exemption from Title 27 for storage of secondary effluent in Secondary Effluent Storage Pond (SESP). This Order requires compliance with the final groundwater limitations by **1 October 2014**. Compliance with the groundwater limitations will result in the storage of secondary effluent in the SESP meeting the preconditions for an exemption from Title 27. Therefore, this compliance schedule ~~temporarily exempts the Discharger from compliance with Title 27 to allow~~provides time for the Discharger to ~~meet~~ achieve and/or demonstrate compliance with all preconditions for an exemption from Title 27. The Discharger shall comply with the following time schedule to ensure compliance with the final groundwater limitations and to demonstrate the storage of secondary effluent in the SESP is in compliance with the Basin Plan:

Task	Date Due
i. Submit Method of Compliance Workplan/Schedule	Within 6 months after adoption of this Order
ii. Progress Reports[1]	1 October, annually, after approval of work plan until final compliance
iii. Full Compliance	**1 October 2014**

Task	Date Due

[1] The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Sections IV.A.1.a and 2.a). Compliance with the final effluent limitations for BOD_5 and TSS required in Limitations and Discharge Requirements section IV.A shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Limitations and Discharge Requirements section IV.A for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Aluminum Effluent Limitations (Sections IV.A.1. a. & h. and 2.a. & h.). Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

C. Temperature Effluent Limitations (Sections IV.A.1.d. and 2.d.) Compliance with the final effluent limitations for temperature shall be ascertained by averaging the monitoring results metered continuously at monitoring location EFF-001 during the 24 hour period starting at 12 am on the same day of the receiving water monitoring results.

D. Total Mercury Mass Loading Effluent Limitations (Section IV.A.3.a.). The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program and any special studies shall be used for these calculations.

2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

E. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.f. and 2.f.). The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the

average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

F. **Total Coliform Organisms Effluent Limitations (Section IV.A.1.a. & e. and 2.a. & e.).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days for which analyses have been completed. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period.

G. **Land Discharge Loading Limits (Section IV.B**.). The Discharger shall perform the following calculations during all months when land application occurs.

1. **Total Nitrogen (Section IV.B.2)**. The Total Nitrogen loading rate shall be calculated for each irrigation field (As shown in Attachment C-2) on a monthly basis using the daily applied volume of wastewater, the most recent effluent monitoring results, and the daily application area. Loading rates for supplemental nitrogen (e.g. fertilizers), when applicable, shall be calculated and included in the total nitrogen loading rate for each irrigation field on a monthly basis using the actual daily applied load and the estimated daily application area. The cumulative nitrogen loading rate for each irrigation field for the calendar year to date shall be calculated as a running total of monthly loadings to date from all sources.

2. **20ºC Biological Oxygen Demand, 5-day (BOD_5) (Section IV.B.3.)**. BOD_5 loading rates shall be calculated for each irrigation field. For compliance determination, the cycle average BOD_5 loading rates shall be calculated using the total volume applied on the day of application, the number of days between applications, the total application period, application area, and a running average of the three most recent results of BOD_5 for the applicable source wastewater. When reporting, include the daily BOD_5 loading rates, which shall be calculated using the total volume applied on the day of application, estimated application area, and a running average of the three most recent results of BOD_5 for the applicable source water.

H. **Mass Effluent Limitations**. The mass effluent limitations contained in Final Effluent Limitations IV.A.1.a and 2.a are based on the permitted average dry weather flow and calculated as follows:

Mass (lbs/day) = Flow (mgd) x Concentration (mg/L) x 8.34 (conversion factor)

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a and 2.a shall not apply.

I. **Chronic Whole Effluent Toxicity Effluent Limitation**. Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with effluent limitations IV.A.1.g and IV.A.2.g for chronic whole effluent toxicity.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Practicable Treatment or Control (BPTC): BPTC is a requirement of State Water Resources Control Board Resolution 68-16 – "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (referred to as the "Antidegradation Policy"). BPTC is the treatment or control of a discharge necessary to assure that, *"(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."* Pollution is defined in CWC Section 13050(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes "pollution."

Bioaccumulative
Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)
CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge
Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 1 day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit
Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in CWC section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate

areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Attachment B, revised as of 3 July 1999.

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Ocean Waters
The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent Pollutants
Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL)
RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System
The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water
Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

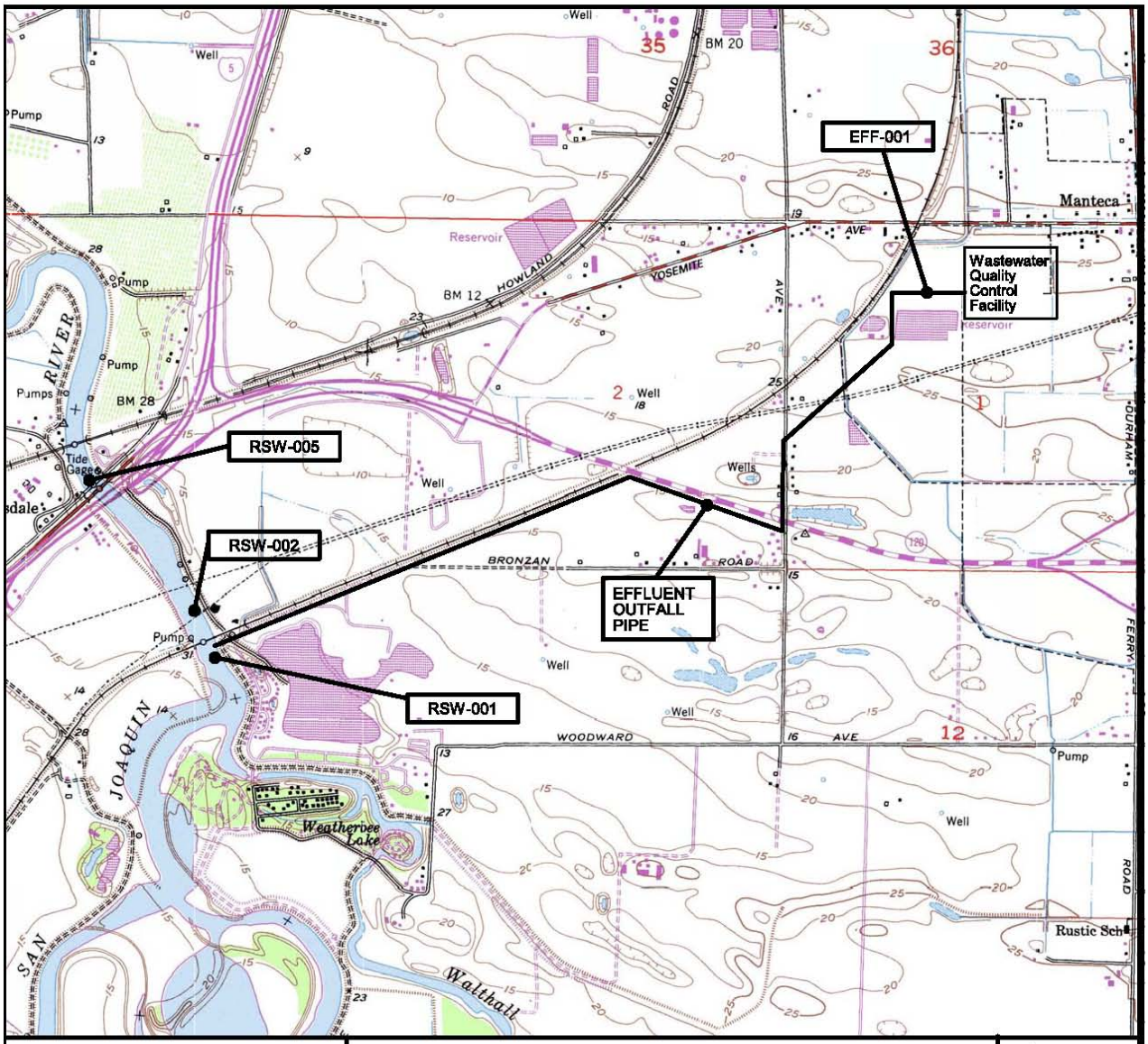
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

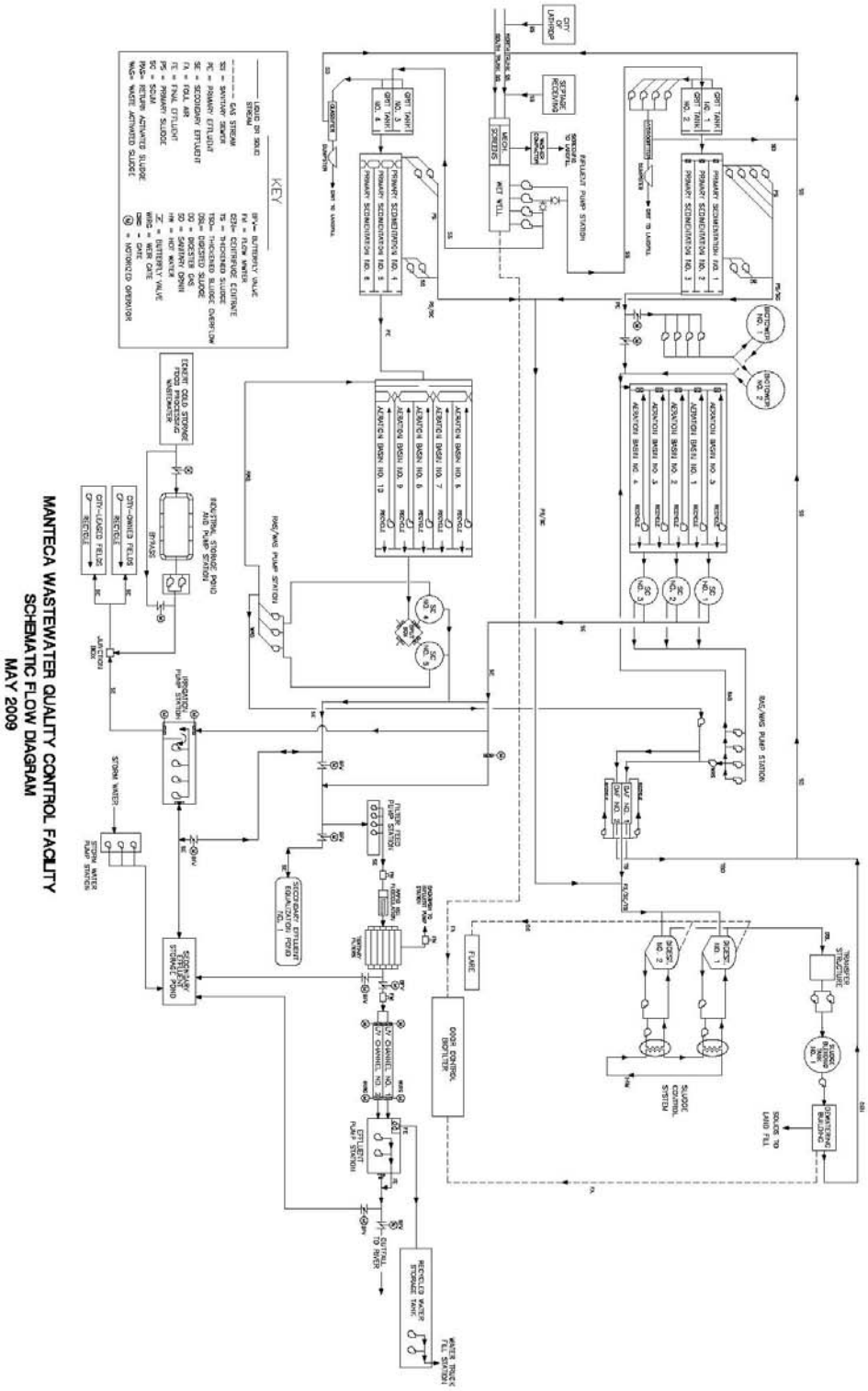
Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP

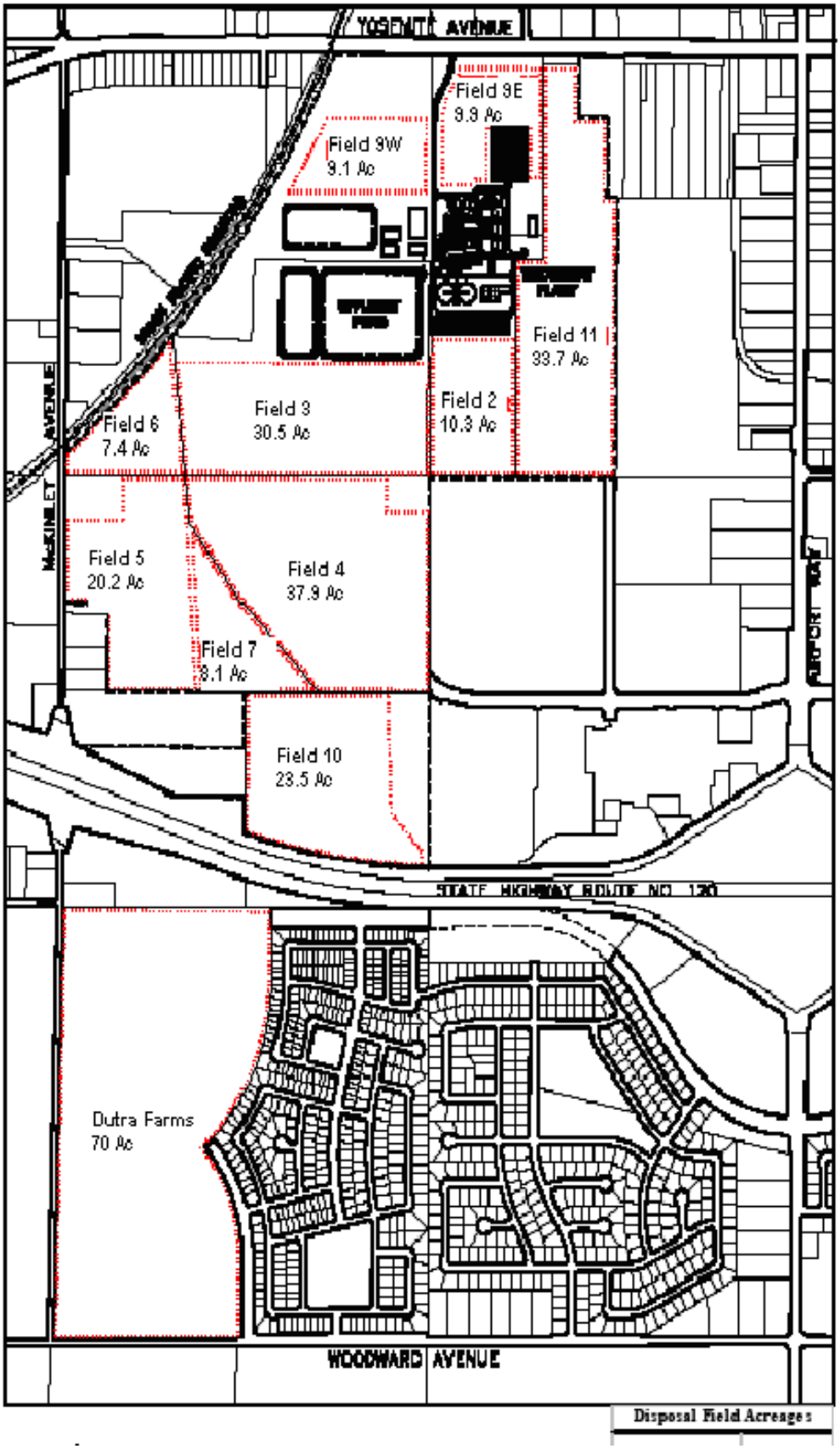


Drawing Reference	CITY OF MANTECA	N
USGS TOPOGRAPHIC MAP 7.5 MIN QUADRANGLE PHOTOREVISED 1987	WASTEWATER QUALITY CONTROL FACILITY	
Not to Scale	SAN JOAQUIN COUNTY	

ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT C – AGRICULTURAL FIELDS



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); CWC section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 CFR 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC. (40 CFR 122.41(l)(3) and 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 CFR 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board,

State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

"*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*" (40 CFR 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b) (40 CFR 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR 122.41(l)(1)(ii).)

   The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 CFR 122.41(l)(1)(ii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any

report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 CFR 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 CFR 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 CFR 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.

B. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

C. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the Department of Public Health (DPH; formerly the Department of Health Services). In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

D. All analyses shall be performed in a laboratory certified to perform such analyses by DPH. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board.

E. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

F. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

G. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of CWC section 13176, and must include quality assurance/quality control data with their reports.

H. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

I. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

J. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	Location where a representative sample of the facility's influent can be obtained, prior to any additives, treatment processes, and plant return flows.
001	EFF-001	Location where a representative sample of the facility's effluent can be obtained prior to discharge into the receiving water.
	LND-001	At irrigation distribution box, at which all waste tributary to the irrigation line is present, and is representative of the irrigation reuse waters applied to the agricultural fields.
	LND-002	At secondary effluent sampler where a representative sample of reclaimed wastewater can be obtained prior to discharge to the pond or land applied.
	REC-001	Location at the tertiary effluent station where a representative sample of the facility's recycled water used for construction purposes can be obtained prior to distribution to Discharger's clients
--	RSW-001	San Joaquin River, mid-stream approximately 100 feet south of Discharge Point 001
	RSW-002	San Joaquin River, mid-stream approximately 500 feet north of Discharge Point 001
	RSW-005	DWR's Monitoring Station, San Joaquin River at Mossdale Bridge (MSD)
	MW-3	Groundwater monitoring well located in land-application agricultural Field 3
	MW-5	Groundwater monitoring well located in land-application agricultural Field 5
	MW-9W	Groundwater monitoring well located in land-application agricultural Field 9W
	MW-10	Groundwater monitoring well located in land-application agricultural Field 10
	MW-11	Groundwater monitoring well located in land-application agricultural Field 11
	MW-AW	Background groundwater monitoring well located on Airport Way, upgradient and approximately 1200 feet east of the agricultural fields
	PND-001	At a point in the pond, at which all waste tributary to the pond is present, and is representative of the combined wastewaters discharged into the pond.
	BIO-001	Biosolids prior to removal from the Facility

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

3. The Discharger shall monitor influent to the facility at INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite	1/day	
Total Suspended Solids (TSS)	mg/L	24-hr Composite	1/day	
Electrical Conductivity	µmhos/cm @ 25°C	Grab	1/month	
Total Dissolved Solids	mg/L	Grab	1/month	

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor municipal effluent at EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
Conventional Pollutants				
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite	1/Day	[1]
	lbs/day	Calculate	1/Day	[1]
Total Suspended Solids (TSS)	mg/L	24-hr Composite	1/Day	
	lbs/day	Calculate	1/Day	
pH	Standard Units	Grab	1/Day	
Total Coliform Organisms	MPN/ 100 ml	Grab	1/Day	
Oil and Grease	mg/L	Grab	1/Month	
Priority Pollutants				
Bis (2-ethylhexyl) phthalate	µg/L	Grab	1/Month	[1,2,3]
Copper, Total Recoverable	µg/L	24-hr Composite	1/Month	[1,3]
Silver, Total Recoverable	µg/L	24-hr Composite	1/Month	[1,3]
Mercury, Total Recoverable	ng/L	Grab	1/Month	[11]
	lbs/month	Calculate	1/Month	
Benzidine	µg/L	24-hr Composite[4]	1/Month	[1,3]
Priority Pollutants (except those listed above)	µg/L	24-hr Composite[4]	[5]	[1,3,10]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	24-hr Composite	1/Month	[1,6]
Chlorine Residual	mg/L	Grab	1/Day[14]	
Temperature	ºF (ºC)	Meter	Continuous	
Turbidity	Nephelometric Turbidity Units	Meter	Continuous	
Hardness (as $CaCO_3$)	mg/L	Grab	2/Month[13]	
Dissolved Oxygen	mg/L	Grab	2/Month[13]	
Settleable Solids	ml/L	Grab	1/Day	
Total Dissolved Solids	mg/L	Grab	1/Month	
Electrical Conductivity @ 25ºC	µmhos/cm	Grab	1/Month	

Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[7,8]	[1]
Nitrate (as N)	mg/L	Grab	1/Week	
Nitrite (as N)	mg/L	Grab	1/Week	
Mercury (methyl)	µg/L	Grab	1/Month	[11]
Standard Minerals[9]	mg/L	Grab	[6]	[1]
MBAS	µg/L	Grab	1/Month	
Whole Effluent Toxicity (see Section V. below)	--	--	--	--

1 Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
2 In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
3 For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the Discharger shall monitor for all pollutants/constituents listed in Attachment H of this Order. Detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
4 [4] Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
5 As required by Other Monitoring Requirements. IX.E. in this section, Monitoring and Reporting Program, of this Order, and concurrent with receiving surface water sampling.
6 Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
7 Concurrent with whole effluent acute toxicity monitoring.
8 pH and temperature shall be recorded at the time of ammonia sample collection.
9 Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).
10 TCDD-Dioxin Congener Equivalents shall include all 17 of the 2,3,7,8 TCDD dioxin congeners as listed in section 3 of the SIP and Attachment I of this Order.
11 Unfiltered methyl mercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/l for methylmercury and 0.2 ng/l for total mercury.
12 Carbofuran shall be analyzed by a U.S. EPA approved method with a Reporting Limit of less than 2 µg/L.
13 Samples shall be monitored on the same day as the receiving water monitoring samples.
14 Monitoring is only required when chlorine is used in any processes or maintenance activities.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform weekly acute toxicity testing, concurrent with effluent ammonia sampling.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.

3. *Test Species* – Test species shall be fathead minnows (Pimephales promelas).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform quarterly three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in this Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
   - The green alga, *Selenastrum capricornutum* (growth test).

5. *Methods* – The presence of chronic toxicity shall be estimated as specified in *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.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – The chronic toxicity testing shall be performed using the dilution series identified in the table, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic), unless initial tests results indicate that the receiving water is toxic.

   If the receiving water is toxic, laboratory control water may be used as the diluent, in which case, the receiving water should still be sampled and tested to provide evidence of its toxicity.

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *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 (Method Manual), and its subsequent amendments or revisions; or

   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

C. WET Testing Notification Requirements. The Discharger shall notify the Regional Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. WET Testing Reporting Requirements. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:

a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.

b. The statistical methods used to calculate endpoints;

c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

d. The dates of sample collection and initiation of each toxicity test; and

e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes ***(if applicable)***:

a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location–LND-001

1. The Discharger shall monitor the wastewaters applied to agricultural fields at LND-001 as required in Table E-6. Sampling is not required during periods when wastewater is not applied to agricultural fields:

Table E-5. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method[4]
Flow[2,3]	mgd & in/ac/day	Metered	Continuous	
Rainfall	inches	Measurement	1/Day	
Acreage Applied[2,3]	acres	Calculated	1/Day	

Application Rate[2,3]	gal/ac/day	Calculated	1/Day	
pH[3]	Standard Units	Grab	1/week/event	
Total Dissolved Solids[2,3]	mg/L & lbs/ac/day	Grab	1/week/event	
Total Sodium[2,3]	mg/L & lbs/ac/day	Grab	1/week/event	
Fixed Dissolved Solids[3]	mg/L	Grab	1/week/event	
Electrical Conductivity[3]	µmhos/cm	Grab	1/week/event	
Total Suspended Solids	mg/L	Grab	1/week/event	
BOD 5-day @ 20ºC[2,3]	mg/L & lbs/ac/day	Grab	1/day/event	
Total Nitrogen[2,3]	mg/L & lbs/ac/day	Grab	1/week/event	
Nitrate (as N)[3]	mg/L	Grab	1/week/event	
Ammonia, Total (as N)[3]	mg/L	Grab	1/week/event	

1. The minimum required sampling frequency is once per event. The maximum required sampling frequency is once per sampling period (i.e. week or month).
2. For each land application area, flows shall be reported as cumulative daily flows and calculated based on pump curves and run times, unless an alternative method is proposed and approved by the Executive Officer.
3. Land application areas shall be identified.
4. Pollutants shall be analyzed using the analytical methods described in 40 CFR sections 136.

B. The Agricultural Field Inspections

1. The Discharger shall inspect the land application areas at least once daily during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly self-monitoring reports. The following items shall be documented for each field to be irrigated on that day.

a. Evidence of erosion;
b. Evidence of berm damage or erosion;
c. Evidence of damage to standpipes and flow control valve (if applicable);
d. Evidence of improper use of valves;
e. Condition of head ditch;
f. Soil saturation;
g. Ponding;
h. Evidence of damage to tailwater ditches and evidence of potential and actual runoff to off-site areas;
i. Evidence of potential and actual discharge to surface water;
j. Accumulation of organic solids in ditches and at soil surface;
k. Soil clogging;
l. Odors that have the potential to be objectionable at or beyond the property boundary; and
m. Evidence of fly and/or mosquito breeding.
n. Temperature, wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made, including fresh water flushing of the force main and head ditches. A copy of entries made in the log during each month shall be submitted as part of the monthly self-monitoring report.

C. Report Requirements

1. The Discharger shall report the analytical results and inspection findings required in previous sections VI.A and B. as specified in the Reporting Requirements of the MRP sections X.B.3. and D.4.

VII. RECLAMATION MONITORING REQUIREMENTS

A. Monitoring Location LND-002

1. The Discharger shall monitor undisinfected secondary effluent at LND-002 when discharging to pond or to agricultural fields as follows:

Table E-6. Reclamation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd & in/ac/day[1]	Meter	Continuous	
Acreage Applied[1]	acres	Calculated	1/Day	
Application Rate[1]	gal/ac/day	Calculated	1/Day	
BOD 5-day @ 20ºC	mg/L	Grab	1/day	
Total Settleable Solids	mg/L	Grab	1/day	
pH[1]	Standard Units	Grab	1/week/event	
Total Dissolved Solids[1]	mg/L & lbs/ac/day	Grab	1/week/event	
Electrical Conductivity[1]	µmhos/cm	Grab	1/week/event	
Total Nitrogen[1]	mg/L & lbs/ac/day	Grab	1/week/event	
Nitrate (as N)	mg/L	Grab	1/week/event	
Ammonia, Total (as N)	mg/L	Grab	1/week/event	

1. Only necessary when directly discharging to land. For each land application area, flows shall be reported as cumulative daily flows and calculated based on pump curves and run times, unless an alternative method is proposed and approved by the Executive Officer. Land application areas shall be identified.

B. Monitoring Location REC-001

1. The Discharger shall monitor disinfected tertiary-level treated effluent at REC-001 when supplied to clients for construction purposes as follows:

Table E-7. Reclamation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	
BOD 5-day @ 20ºC	mg/L	Grab	1/day	
Total Coliform Organisms	MPN/100 ml	Grab	1/day	
Total Suspended Solids	mg/L	Grab	1/day	
Turbidity	Nephelometric Turbidity Units	Meter	Continuous	

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001

1. The Discharger shall monitor San Joaquin River at RSW-001 as follows:

Table E-8. Receiving Water Monitoring Requirements, RSW-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	[1]	
pH	Standard Units	Grab	[1]	
Turbidity	Nephelometric Turbidity Units	Grab	[1]	
Temperature	ºF (ºC)	Grab	[1]	
Total Dissolved Solids	mg/L	Grab	1/quarter	
Electrical Conductivity @25 ºC	µmhos/cm	Grab	[1]	
Fecal Coliform Organisms	MPN/100ml	Grab	1/quarter	
Mercury, Total	ng/L	Grab	1/quarter	EPA Method 1631[8]
Methylmercury	ng/L	Grab	1/quarter	EPA Method 1630[8]
Hardness (as $CaCO_3$)	mg/L	Grab	2/month[9]	
Priority Pollutants (and other constituents of concern)	µg/L	Grab	[5]	[2,3,4, 10]

[1] Samples shall be collected every two weeks when discharging to the receiving water.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[3] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the Discharger shall monitor for all pollutants/constituents listed in Attachment H of this Order. Detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
[4] TCDD-Dioxin Congener Equivalents shall include all 17 of the 2,3,7,8 TCDD dioxin congeners as listed in section 3 of the SIP.
[5] As required by Other Monitoring Requirements IX.E. in this section (Monitoring and Reporting Program) of this Order, and concurrent with effluent sampling.
[8] Unfiltered total mercury and methlymercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1631/1630 (Revision E) with a method detection limits of 0.02 ng/l.
[9] Samples shall be monitored on the same day as the effluent monitoring samples.
[10] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the receiving water, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

B. Monitoring Location RSW-002

1. The Discharger shall monitor San Joaquin River at RSW-002 as follows:

Table E-9. Receiving Water Monitoring Requirements, RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	[1]	
pH	Standard Units	Grab	[1]	
Turbidity	Nephelometric Turbidity Units	Grab	[1]	
Temperature	ºF (ºC)	Grab	[1]	
Total Dissolved Solids	mg/L	Grab	1/quarter	
Electrical Conductivity @25 ºC	µmhos/cm	Grab	[1]	
Fecal Coliform Organisms	MPN/100ml	Grab	1/quarter	
Hardness (as $CaCO_3$)	mg/L	Grab	2/month[6]	

[1] Samples shall be collected every two weeks when discharging to the receiving water.
[2] Temperature and pH shall be determined at the time of sample collection.
[3] Unfiltered total mercury and methlymercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels,* for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1631/1630 (Revision E) with a method detection limits of 0.02 ng/l.
[4] Persistent chlorinated hydrocarbon pesticides include: aldrin, dieldrin, chlordane, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha-BHC, beta-BHC, delta-BHC, and gamma-BHC or lindane), endosulfan (alpha and beta), endosulfan sulfate, toxaphene, 4,4'DDD, 4,4'DDE, and 4,4'DDT.
[5]. Samples shall be collected once per month when discharging to the receiving water.
[6] Samples shall be monitored on the same day as the effluent monitoring samples.

C. Monitoring Location RSW-005

1. The Discharger shall monitor San Joaquin River at RSW-005 as follows:

Table E-10. Receiving Water Monitoring Requirements, RSW-005

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	cfs	Meter	Continuous	
Direction of Flow		Meter	Continuous	

D. Visual Observations RSW-001 and RSW-002

1. In conducting receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002. A description, including at the minimum, the presence or absence of the following shall be recorded and summarized in the self-monitoring reports.
   a. Floating or suspended matter;
   b. Discoloration;
   c. Bottom deposits;
   d. Aquatic life;

e. Visible films, sheens, or coatings;
f. Fungi, slimes, or objectionable growths; and
g. Potential nuisance conditions.

E. Groundwater Monitoring

1. The Discharger shall monitor the groundwater in existing monitoring wells MW-3, MW-5, MW-9W, MW-10, MW-11, which characterize the condition of the groundwater underlying the influence of the Facility, and MW-AW, which is the background groundwater monitoring well located on Airport Way. Groundwater monitoring shall include, at a minimum, the following:

Table E-11. Receiving Water Monitoring Requirements, Groundwater

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	0.01 feet	Measurement	1/quarter	
Groundwater elevation[1]	feet	Calculated	1/quarter	
Gradient magnitude	Feet/feet	Calculated	1/quarter	
Gradient direction	degrees	Calcultated	1/quarter	
pH	Standard Units	Grab	1/quarter	
Total Dissolved Solids	mg/L	Grab	1/quarter	
Electrical Conductivity @ 25ºC	µmhos/cm	Grab	1/quarter	
Chloride	mg/L	Grab	1/quarter	
Sodium	mg/L	Grab	1/quarter	
Boron	mg/L	Grab	1/quarter	
Ammonia, Total (as N)	mg/L	Grab	1/quarter	
Nitrate (as N)	mg/L	Grab	1/quarter	
Nitrite (as N)	mg/L	Grab	1/quarter	
Total coliform organisms	MPN/100 mL	Grab	1/quarter	
Dissolved iron[2]	mg/L	Grab	1/quarter	
Dissolved manganese[2]	mg/L	Grab	1/quarter	

1. Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.
2. Samples shall be filtered with a 0.45-micron filter prior to sample preservation.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected quarterly at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).

b. A composite sample of sludge shall be collected quarterly at Monitoring Location BIO-001 in accordance with USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for the metals listed in Title 22.

c. Sampling records shall be retained for a minimum of **5 years**. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

d. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and the most recent quantitative results of chemical analysis for the priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols). In addition to USEPA's POTW *Sludge Sampling and Analysis Guidance Document*, August 1989, suggested methods for analysis of sludge are provided in USEPA publications titled *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* and *Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater*. Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available.

B. Storage Pond Monitoring

A. At a minimum, the Discharger shall monitor wastewater impounded at PND-001 as required in Table E-9b, below.

Table E-12. Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/week	
pH	Standard Units	Grab	1/week	
Freeboard	feet	Measured	1/week	
Available Storage Volume	Acre-feet	Calculated	1/month	

C. Ultraviolet (UV) Disinfection System

A. The Discharger shall monitor as follows:

Table E-13. Ultraviolet Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow rate[1]	mgd	Meter	Continuous	
Turbidity[1,2]	Nephelometric Turbidity Units	Meter	Continuous	
Number of UV banks in operation	Number	Meter	Continuous	
UV Transmittance[1,3,4]	Percent (%)	Meter	Continuous	
UV Power Setting	Percent (%)	Meter	Continuous	
UV Dose[5]	mJ/cm^2	Calculated	Continuous	

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1]. To be monitored at EFF-001

[2]. Report daily average turbidity and maximum turbidity. If the turbidity sample collected at EFF-001 exceeds 10 Nephelometric Turbidity Units, collect an effluent grab sample and analyze for total Coliform organisms and report the duration of the turbidity exceedance.

[3]. The Discharger shall report documented routine meter maintenance activities, including date, time of day, duration, in which the UV Transmittance analyzer(s) is not in operation to record monitoring information.

[4]. The UV Transmittance analyzer can be out of service for calibration no more than 2 hours. One UV Transmittance sample shall be grabbed and analyzed. Grab sample results will then be entered into UV control system as the value used for UV dose calculation.

[5]. Report daily minimum UV dose, daily average UV dose, and weekly average UV dose. For the daily minimum UV dose, also report associated number of banks, gallons per minute per lamp, power settings, and UV transmittance used in the calculation. If effluent discharge has received less than the minimum UV dose and is not diverted from discharging to San Joaquin River, report the duration and dose calculation variables with each incident.

D. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the municipal water supply at SPL-001 as follows. A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Municipal water supply samples shall be collected at approximately the same time as effluent samples.

Table E-14. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids[1]	mg/L	Grab	1/quarter	
Electrical Conductivity @ 25°C[1]	µmhos/cm	Grab	1/quarter	
Standard Minerals[2]	mg/L	Grab	1/year	

[1] If the water supply is from more than one source, the total dissolved solids and electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.

[2] Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

E. 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 shall 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 only twice during the year, as described in Attachment I. The report shall be completed in conformance with the following schedule.

Task	Compliance Date
i. Submit Work Plan and Time Schedule	No later than 2 years 6 months from adoption of this Order
ii. Conduct monthly[1] monitoring	During third year of permit term
iii. Submit Final Report	6 months following completion of final monitoring event

[1] Dioxin and Furan sampling shall be performed only twice during the year, as described in Attachment I.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State Water Board or the Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality

System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this Monitoring and Reporting Program under sections III through IX. The Discharger shall submit monthly SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. **Monitoring results shall be submitted to the Regional Water Board by the 1st day of the second month following sample collection. Quarterly monitoring results shall be submitted by the 1st day of the second month following each calendar quarter.**

3. For reporting the land discharge specifications and applicable limitations of this Order, at a minimum, the self-monitoring report shall be submitted monthly, and the report shall include:

a The monthly results of the required monitoring in this MRP for land discharge (Section VI), reclamation (Section VII), groundwater (Section VIII.E), and ponds (Section IX.B). Data shall be presented in tabular format.

b Daily precipitation data in tabular form accompanied by starting and ending dates of irrigation for each field.

c Daily field inspection reports, during periods when land application operations is conducted, including records of the date and time.

d A comparison of monitoring data to the discharge specifications and applicable limitations and an explanation of any violation of those requirements.

e Daily discharge volumes and acres irrigated shall be tabulated. The report shall include discharge volumes and irrigation practices used (water source, method of application, application period/duration, drying times, etc.) for each field or group of fields utilized during the month. **Hydraulic loading rates** (inches/acre/month) shall be calculated.

f **Maximum daily BOD5 loading rates** (lbs/acre/day) shall be calculated for each irrigation field using the total volume applied on the day of application, estimated application area, and a running average of the three most recent results of BOD5 for the applicable source water, which also shall be reported along with supporting calculations.

g **Total nitrogen** (lbs/acre/day) shall be calculated for each irrigation field on monthly basis using the daily applied volume of wastewater, daily application area, and the most recent monitoring results, which shall also be reported along with supporting calculations.

h **Nitrogen loading rates** for other sources (i.e., fertilizers) shall be calculated for each irrigation field on a monthly basis using the daily applied load and the estimated daily application area.

i **Cumulative nitrogen** for each irrigation field for the calendar year to date shall be calculated as a running total of monthly loadings to date from all sources.

4. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-15. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month	All	Submit with, monthly SMR
1/Day	First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week or every 2 weeks	First Sunday of the calendar month following the permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with monthly SMR
1 or 2/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	First day of calendar month through last day of calendar month	Submit with monthly SMR
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	Submit with monthly SMR
1/Year	1 January following permit effective date	1 January through 31 December	Submit with monthly SMR

5. Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the 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.

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 be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

6. Compliance Determination. Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

7. Multiple Sample Data. When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

8. The Discharger shall submit SMRs in accordance with the following requirements:

a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for

entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board
Central Valley Region
NPDES Compliance and Enforcement Unit
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670-6114

C. Discharge Monitoring Reports (DMRs)

1. As described in section X.B.1 above, at any time during the term of this permit, the State Water Board or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. Progress Reports. As specified in the compliance time schedules required in the Special Provisions contained in section VI of the Order, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether

the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-16. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Pollution Prevention Plan (PPP) for Mercury (Special Provisions VI.C.3.a)	1 December, annually, after submittal of updated PPP
Site-specific Salinity Study (Special Provisions VI.C.2.c)	1 December, annually, after approval of the work plan

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, and Pollution Prevention Plan (PPP) required by Special Provisions VI.C.2, 3, and 6 of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date, except for mercury PPP which must be submitted in compliance with the reporting requirements described in Table E-11.

3. Within 60 days of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP.

4. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage facilities.

5. Annual Operations Report. By 30 January of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

e. The Discharger may also be requested to submit an annual report to the Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

6. Annual Pretreatment Reporting Requirements. The Discharger shall submit annually a report to the Regional Water Board, with copies to USEPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

An annual report shall be submitted by **28 February** and include at least the following items:

a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under Section 307(a) of the CWA which are known or suspected to be discharged by industrial users.

Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

b. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by industrial users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent

Pass-Through, Interference, or noncompliance with sludge disposal requirements.

c. The cumulative number of industrial users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.

d. An updated list of the Discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

i. complied with baseline monitoring report requirements (where applicable);

ii. consistently achieved compliance;

iii. inconsistently achieved compliance;

iv. significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);

v. complied with schedule to achieve compliance (include the date final compliance is required);

vi. did not achieve compliance and not on a compliance schedule; and

vii. compliance status unknown.

A report describing the compliance status of each industrial user characterized by the descriptions in items iii. through vii. above shall be submitted for each calendar quarter **within 21 days of the end of the quarter**. The report shall identify the specific compliance status of each such industrial user and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report. This quarterly reporting requirement shall commence upon issuance of this Order.

e. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the industrial users. The summary shall include:

i. the names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

ii. the conclusions or results from the inspection or sampling of each industrial user.

f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

i. Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations.

ii. Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

iii. Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

iv. Criminal actions regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

v. Assessment of monetary penalties. For each industrial user identify the amount of the penalties.

vi. Restriction of flow to the POTW.

vii. Disconnection from discharge to the POTW.

g. A description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's approved Pretreatment Program including, but not limited to, changes concerning: the program's administrative structure, local industrial discharge limitations, monitoring program or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, resource requirements, or staffing levels.

h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

Duplicate signed copies of these Pretreatment Program reports shall be submitted to the Regional Water Board and the:

State Water Resources Control Board
Division of Water Quality
1001 I Street or P.O. Box 100
Sacramento, CA 95812

and the

Regional Administrator
U.S. Environmental Protection Agency W-5
75 Hawthorne Street
San Francisco, CA 94105

B. Nutrient Management Plan. An Annual Report shall be prepared and shall include all monitoring data required in the monitoring schedule applicable land applications, including pond and groundwater monitoring. The Annual Report shall be submitted to the Regional Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

a. Tabular and graphical summaries of historical monthly total loading rates for water (hydraulic loading in gallons and inches), BOD, total nitrogen, fixed dissolved solids, and total dissolved solids (TDS).

b. The flow-weighted average TDS concentration shall be calculated based on flow, effluent, and supplemental irrigation water monitoring results for the year.

c. A mass balance relative to constituents of concern and hydraulic loading along with supporting data and calculations. The report shall describe the types of crops planted and dates of planting and harvest for each crop.

d. For each violation of the Discharge Specifications, applicable Prohibitions, and Groundwater Limitations of this Order, the report shall describe in detail the nature of the violation, date(s) of occurrence, cause(s), mitigation or control measures taken to prevent or stop the violation, and additional operational or facility modifications that will be made to ensure that the violation does not occur in the following year.

e. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control, including consideration of application management practices (i.e. waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data.

f. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the land application discharge, or groundwater limits, into full compliance with the requirements in this Order.

g. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

h. Based on this information, the Discharger shall develop and include a Cropping and Irrigation plan for the following season.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in the Findings in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5B390104001
Discharger	City of Manteca, and Dutra Farms, Inc. for land parcel APN 241-320-47
Name of Facility	City of Manteca Wastewater Quality Control Facility
Facility Address	2450 West Yosemite Avenue
	Manteca, CA 95337
	San Joaquin County
Facility Contact, Title and Phone	Tom Foley, Superintendent, (209) 456-8472
Authorized Person to Sign and Submit Reports	Phil Govea, Deputy Director of Public Works, (209) 456-8415
Mailing Address	1001 West Center Street, Manteca, CA 95337
Billing Address	SAME
Type of Facility	Publicly Owned Domestic Wastewater Treatment Works
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Y
Reclamation Requirements	Producer
Facility Permitted Flow	9.87 million gallons per day (mgd) (1)
Facility Design Flow	9.87 mgd
Watershed	San Joaquin River Watershed
Receiving Water	San Joaquin River>
Receiving Water Type	Sacramento-San Joaquin Delta

(1) Effective immediately, the design and permitted treatment capacity is 9.87 mgd. Upon compliance with Special Provisions VI.C.6.c, the permitted flow may increase to 17.5 mgd**.**

A. The City of Manteca (hereinafter Discharger) is the owner and operator of the City of Manteca Wastewater Quality Control Facility (hereinafter Facility), a Publicly-Owned Domestic Wastewater Treatment Works.

For the purposes of this Order, references to the "discharger" or "permittee" in

applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to the San Joaquin River within the Sacramento-San Joaquin Delta, a water of the United States, and is currently regulated by Order No. R5-2004-0028, which was adopted on 19 March 2004, and its subsequent amendments. Further, Cease and Desist Order No. R5-2004-0029 was adopted by the Regional Water Board on 19 March 2004 and establishes time schedules for the Discharger to comply with some limitations and provisional requirements. Order No. R5-2004-0028 expired on 1 March 2009. The terms and conditions of the current Orders have been automatically continued and remain in effect until the new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit in August 2008. The application was deemed complete on 11 December 2008. A site visit was conducted on 27 May 2009 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for commercial and residential uses within the City of Manteca and a portion of the City of Lathrop, serving a population of approximately 80,500. The Discharger has an approved EPA pretreatment program that has two non-categorical significant industrial users and one categorical industrial user. The municipal wastewater collection system consists of two main lines servicing the City of Manteca that includes 184 miles of sewer mains with 18 pump stations, and another line servicing the City of Lathrop that is connected by 27 miles of sewers mains. The collection systems are regulated under State Water Board Order 2006-003. A separate industrial line accepts food processing wastewater seasonally from Eckert Cold Storage from about May through November. Eckert Cold Storage processes frozen vegetables (e.g. cabbage and a variety of peppers), and discharges primarily wastewaters from the cutting and washing of these vegetables. However, at times, the food processing wastewater is mixed with wastewaters from clean-up of the processing equipment, freezer defrost waters, and cooling towers. The food processing wastewater is stored and aerated in a lined pond at the Facility, and then applied to agricultural fields when needed.

The Facility occupies approximately 22 acres of the 210 acres owned by the Discharger. Since adoption of Order No. R5-2004-0028, the Facility has undergone major expansions and upgrades. In August 2005, the Discharger obtained higher-quality surface water from South County Water Supply Program to blend with its existing groundwater drinking water supply to improve its drinking water supply source (e.g. lower salinity). In May 2006, biological nitrification-denitrification was added to the secondary treatment process. In September 2007, the City also added a secondary effluent equalization pond, a filter-feed pump station, coagulation and flocculation facilities, tertiary filters, a chemical storage and handling facility, an ultraviolet light pathogen deactivation system (UV Disinfection), an effluent pumping station, a recycled water pumping station, a groundwater well for plant process water, and a construction truck recycled water filling station. In 2007, the Facility

was also modified to fully separate the food-processing waste received from Eckert Cold Storage to apply directly to agricultural fields.

A. Description of Wastewater and Biosolids Treatment or Controls

The Facility is currently a 9.87 mgd rated combined biofilter-activated sludge tertiary treatment plant, and the maximum daily flow rate is about 8.1 mgd. A Facility expansion to increase capacity to 17.5 mgd is projected during the term of this Order, beginning in the fourth quarter of 2010 and ending in the second quarter of 2012; a detailed discussion follows in Section II.E of this Fact Sheet. The Discharger completed an antidegradation analysis for the expansion, and a detailed discussion is contained in Section IV.D.4 of this Fact Sheet.

Currently, at the Facility, an influent pump station with two mechanical screens serves two parallel treatment systems. Primary treatment, which is identical in both systems, consists of aerated grit removal, and primary sedimentation. Primary effluent undergoes biological treatment by ultra fine-bubble activated sludge aeration basins, nitrification and denitrification, and secondary sedimentation at both treatment systems. However, at the northside treatment system, the primary effluent first undergoes additional treatment through two biotowers with high-rate plastic media.

Undisinfected secondary effluent is either stored for agricultural use in a 15 million gallon pond or blended with food processing waste and applied directly to agricultural fields. The agricultural fields are used to grow crops for dairy feed. The land application area consists of ten fields located on land owned by the Discharger (Fields 2 though 11 shown in Attachment C-2), plus one field located on property owned by Dutra Farms, Inc. The Discharger-owned agricultural fields total approximately 190 acres surrounding the Facility. Dutra Farms, Inc. is named in this Order as the responsible party for management and operation of it's 70 acre agricultural field, APN 241-320-47, where wastewater is also applied.

Tailwater from the fields 2, 4, 5, 10, and Dutra-Farms, Inc. is collected in a sump and pumped back to the irrigation supply system. Tailwater from field 3 drains to a sump and pumped into the pond for irrigation. Tailwater from field 6 percolates into the soil. Tailwater from field 7 drains to field 10. And tailwater from field 9W drains to adjacent unused land that doesn't contain an outlet.

Secondary effluent in excess of crop demands undergoes further treatment through rapid mixing, flocculation, tertiary level using cloth media filtration, and UV Disinfection. The disinfected tertiary effluent is pumped from The Facility to its Truck Fill Station, located at the entrance of the Facility. The Truck Fill Station provides access for construction vehicles to receive recycled water for construction purposes. The Discharger has plans for additional uses of recycled water (City of Manteca Recycled Water Master Plan, 2007). Disinfected tertiary level treated effluent is also discharged to the San Joaquin River through a 36-inch outfall.

Sludge removed from primary sedimentation is pumped directly to anaerobic digesters while secondary sedimentation is thickened by dissolved air floatation and then pumped to anaerobic digesters. After digestion, the treated sludge is dewatered by centrifuge, and drying beds. Dried biosolids, grit, and screenings are hauled offsite to a privately-owned landfill for disposal.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 4, T2S, R6E, MDB&M, as shown in Attachment B, a part of this Order.

2. Tertiary-level treated municipal wastewater is discharged at Discharge Point No. 001 to San Joaquin River, a water of the United States at a point latitude 37° 46' 45" N and longitude 121° 18' 00" W.

3. The Facility and Discharge Point 001 are within the 1992 Legal Boundary of the Sacramento-San Joaquin Delta Watershed Management Area, Section 12220 of the California Water Code.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations and Discharge Specifications contained in Order No. R5-2004-0028 for discharges from Discharge Point No. 001 and representative monitoring data from the term of Order No. R5-2004-0028 are as follows:

Table F-2a. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From Sept 2007 To Aug 2008)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD[1]	mg/L	10	20	30	2.27	2.7	4
BOD[1] Minimum Monthly Removal	%	85			98.9	98.7	98.0
TSS	mg/L	10	20	30	1.68	2.4	3.1
TSS Minimum Monthly Removal	%	85			99.3	99.0	98.4
Temperature	ºF	<= Receiving Water plus 20 ºF			79.3	80.6	81.4
pH	SU	Minimum: 6.5	Maximum: 8.5		7.2	7.3	6.7 – 7.4
Dry Weather Flow (July-Sept)	mgd	9.87			6.31	7.48	8.27
Peak Wet Weather Flow (Oct – June)	mgd	13			6.58	7.32	8.45

Parameter	Units	Effluent Limitation			Monitoring Data (From Sept 2007 To Aug 2008)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Acute Toxicity	%	1-sample not to fall below 70% and 3-sample median not to fall below 90% survival.				100	90
Total Coliform	MPN/ 100ml	23[3]	2.2[2]	240[4]	2	2	90
Nitrate	mg/L	10			10.38		
EC	µmhos/ cm	1000			827		
Ammonia	mg/L	2.1 (June–Sept) 2.8 (Oct–May)		4.4 (June–Sept) 5.6 (Oct–May)	0.3 (June–Sept) 0.6 (Oct–May)		0.3 (June–Sept) 0.9 (Oct–May)
Aluminum	µg/L	71		140	24.3		24.3
Mercury	lbs/yr	0.69			0.03		
Chlorine Residual	mg/L	0.01[5]		0.02[6]	0.00		0.00
Turbidity	NTU	2[7]	5[8]	10[9]	3.3	3.3	3.3
Nitrite	mg/L	1			0.17		
Settleable Solids	ml/L	0.1		0.2	<0.1		<0.1
Oil & Grease	mg/L	10		15	0.6		0.7
Arsenic	µg/L	10			8		
Copper	µg/L	7.9		10.4	4.6		4.6
Cyanide	µg/L	3.7		10	<2.0		<2.0
Iron	µg/L	300			49		
Manganese	µg/L	50			17.7		
Bis(2-ethylhexyl) phthalate	µg/L	22		44	<2		<2
Bromodichloro-methane	µg/L	30		47	<0.1		<0.1
Dibromochloro-methane[11]	µg/L	7		16	<0.08		<0.08
2,4,6-Tri-chlorophenol	µg/L	34		69	<1		<1
MBAS	µg/L	500			290		

1. 5-day, 20ºC biochemical oxygen demand
2. 7- day median
3. Not to exceed more than once in 30 days
4. Instantaneous maximum
5. 4-day average
6. 1-hour average
7. Daily average
8. Not to occur more than 5% of the time within 24 hour period
9. Not to exceed any time

Table F-2b. Historic Land Specification Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From April 2004 To Aug 2008)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD[1]	mg/L	30		45	20		20
Settleable Solids	ml/L	0.2		0.5	0.6		2

1. 5-day, 20ºC biochemical oxygen demand

D. Compliance Summary. The following violations were based on Order No. R5-2004-0028:

Administrative Civil Liability Order No. R5-2006-0131, issued on 8 December 2006, assessed mandatory minimum penalties for violations for Effluent Limitation exceedances reported from 1 April 2004 through 28 February 2006. The 63 violations assessed in the ACL, which totaled a mandatory penalty of $207,000, included:

- WDRs Effluent Limitations B.1 through B.3 for arsenic, copper, cyanide, iron, manganese, and MBAS that occurred while the Discharger was out of compliance with its CDO.
- Serious and non-serious violations of WDRs Effluent Limitations B.1 through B.3 for coliform, arsenic, copper, cyanide, iron, manganese, bromodichloromethane, dibromochloromethane, and settleable solids.

Administrative Civil Liability Complaint (ACLC) No. R5-2008-0529, issued on 16 May 2008, assessed mandatory minimum penalties for violations of Effluent Limitations B.2 through B.3 that occurred from 1 March 2006 through 31 December 2007. Effluent Limitation violations included 14 exceedances for pH, Coliform, settleable solids, and dibromochloromethane.

From 1 January 2008 through 28 February 2009, the Discharger has reported 6 violations of Effluent Limitations B.2 for total coliform. A Notice of Violation (NOV) was issued to the Discharger on 8 May 2009.

On 10 October 2008, a NOV was issued to the Discharger for the following violations documented in the NPDES Compliance Evaluation Inspection report:

- On three separate occasions, the pH analysis for three samples was not conducted within 15 minutes of sample collection, which violates Provision H.16.

On 25 November 2008, a NOV was issued to the Discharger for violating Receiving Water Limitation F.2 of its WDRs for the occurrence of significant foaming on the discharge plume from the outfall.

E. Planned Changes

1. **Facility Upgrades.** The Discharger is expanding the Facility from the currently permitted 9.87 mgd to 17.5 mgd. The Discharger currently nitrifies and denitrifies tertiary-level treated effluent. The Discharger prepared and submitted for public review a Draft Environmental Impact Report (DEIR) in compliance with the California Environmental Quality Act (CEQA) that addressed the expansion project. The increased discharge will be primarily for effluent discharges to San Joaquin River because the City determined that it's impracticable to acquire additional agricultural fields; however, the City is seeking to expand it's Title 22 recycled water program (e.g. Baseball Field, parks, etc.). This Order conditionally authorizes the increase of the permitted average dry weather flow from 9.87 mgd to 17.5 mgd upon the Discharger demonstrating compliance with Effluent Limitations IV.A.1 , Receiving Water Limitations V.A.16; and Special Provisions VI.C.6.c.

   As part of the DEIR, the Discharger performed extensive hydrodynamic and thermal modeling to determine the effects of the increased discharge flow to the San Joaquin River and to the Sacramento-San Joaquin Delta downstream of the discharge. The modeling of the thermal plume led to the conclusion that the increased discharge would potentially exceed all provisions of the Thermal Plan; therefore, the City intends to design, install, and operate effluent cooling facilities that will cool treated effluent prior to discharging into the San Joaquin River. The cooling facilities will be designed to reduce temperature of the treated effluent such that the effluent discharge and associated size of the thermal plume will comply with Thermal Plan provisions as necessary to protect sensitive aquatic life. The cooling facilities are expected to be completed during the term of this Order.

2. **Regionalization, reclamation, and recycling.** The Facility is currently a regional treatment facility. In 1986 the Facility began treating a portion of the City of Lathrop's municipal sewage, who is entitled to 14.7% of the Facility's treatment capacity including the planned facility expansion. Furthermore, in the 1970's, the Facility began treating municipal sewage from Raymus Village, a San Joaquin County community. Additionally, the Discharger continues ongoing negotiations with the Oakwood Shores residential development and the City of Ripon regarding acceptance and treatment of their municipal sewage; however, discussions are preliminary and there is not a final proposal at this time.

   As described in previous section II.A. of this Fact Sheet, the Discharger currently reclaims wastewater by irrigating a total of 260 acres of agricultural fields that grow primarily corn and alfalfa used for fodder. Based upon the Discharger's investigation for additional recycled water use, additional agricultural field acreage is not available within the vicinity of the Facility for additional wastewater reclamation opportunities.

   However, the Discharger evaluated urban water recycling opportunities within the City of Manteca, City of Manteca Recycled Water Master Plan, 2007 (The Recycled Water Master Plan). The Recycled Water Master Plan identified 134 sites comprising 817 acres within the City of Manteca as candidates for receiving recycled water that could potentially use 3,700 acre-feet per year of recycled water. The

Recycled Water Master Plan also proposes expansion of its recycled water program that includes construction of a backbone delivery network to deliver recycled water to the municipal golf course, the regional softball complex, major commercial centers along State Route 120, and to the largest community parks in South Manteca.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

A. Legal Authorities

This Order is issued pursuant to regulations in the Clean Water Act (CWA) and the California Water Code (CWC) as specified in the Finding contained at section II.C of this Order.

B. California Environmental Quality Act (CEQA)

This Order meets the requirements of CEQA as specified in the Finding contained at section II.E of this Order.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** This Order implements the following water quality control plans as specified in the Finding contained at section II.H of this Order.

   a. *Water Quality Control Plan, Fourth Edition (Revised October 2007), for the Sacramento and San Joaquin River Basins* (Basin Plan)

   b. *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan)*

   For purposes of the Thermal Plan, the Discharger is considered to be an Existing Discharger of Elevated Temperature Waste. The Thermal Plan in section 5.A. contains the following temperature objectives for surface waters that are applicable to this discharge:

   "5. Estuaries
   A. Existing discharges
   (1) Elevated temperature waste discharges shall comply with the following:
   a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.
   b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.

c. *No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.*

d. *Additional limitations shall be imposed when necessary to assure protection of beneficial uses.*

c. *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan)*

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.

3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.

4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in this Fact Sheet (Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.

6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in this Fact Sheet (Section IV.D.3).

7. **Emergency Planning and Community Right to Know Act**

Section 13263.6(a) of the CWC, requires that "*the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective*".

The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to CWC section 13263.6(a).

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

8. Storm Water Requirements

USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations.

9. Endangered Species Act. This Order is consistent with the Endangered Species Act as specified in the Finding contained at section II.P of this Order.

D. Impaired Water Bodies on CWA 303(d) List

Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources* (40 CFR Part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." The listing for the southern portion of the Sacramento-San Joaquin Delta includes: chloropyrifos, DDT, diazinon, electrical conductivity, exotic species, group A pesticides, mercury, and unknown toxicity.

E. Total Maximum Daily Loads (TMDLs).

USEPA requires the Regional Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. The TMDL for organophosphate pesticides (diazinon and chlorpyrifos) was adopted on 23 June 2006, which established objectives in part to the segment of the San Joaquin River in the southern Sacramento-San Joaquin Delta from the Mendota Dam to Vernalis. Discharge Point 001 is approximately 15 miles downstream of Vernalis, and therefore, the TMDL for organophosphates is not applicable to the discharge. The TMDL for Group A organochlorine pesticides is scheduled for the year 2011. The mercury and methylmercury TMDL is still in development; a TMDL control program has not been adopted nor approved.

The 303(d) listings and TMDLs have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section

IV.C.3. of this Fact Sheet. The Discharger is required to monitor for these constituents as described in the Monitoring and Report Program of this Order (Attachment E).

F. Other Plans, Polices and Regulations

Title 27, California Code of Regulations (CCR), section 20005 *et seq*. (hereafter Title 27) Discharges of wastewater to land, including but not limited to evaporation ponds or percolation ponds, are exempt from the requirements of Title 27, CCR, based on section 20090 *et seq.* The Facility contains storage facilities and agricultural reuse fields where a determination has been made by the ~~Regional~~ Central Valley Water Board whether the facilities meet the exemptions from Title 27. These facilities include the Secondary Effluent Equalization Pond (SEEP), Secondary Effluent Storage Pond (SESP), Food Receiving and Processing Wastewater Pond, and the Land Application Areas. The Regional Water Board's findings regarding Title 27 exemptions are discussed below.

1. **Secondary Effluent Equalization Pond (SEEP).** The SEEP is exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(a). Provision H.4 of Order No. R5-2004-0028 required the Discharger to construct additional storage facilities to demonstrate adequate storage capacity of treated domestic sewage so the discharge to the San Joaquin River could be ceased during periods of incoming tides. The SEEP was constructed to comply with Provision H.4, and ~~therefore,~~ is a necessary part of the Facility's wastewater treatment system. The SEEP is used only to store ~~S~~secondary effluent ~~may be stored in the SEEP~~ prior to tertiary-level treatment and subsequent discharge to the San Joaquin River. The SEEP is therefore part of the Facility's treatment train, and is a "treatment or storage facility associated with" the Facility. It is therefore unconditionally exempt from Title 27 under the sewage exemption. The SEEP is fully tetra-lined.

~~1. **Ponds** The following storage facilities are exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(b), if the following conditions are met~~:

- ~~The applicable [regional water quality control board] has issued [waste discharge requirements], or waived such issuance;~~
- ~~the discharge is in compliance with the applicable water quality control plan;and~~
- ~~the wastewater does not need to be managed . . . as a hazardous~~

~~b.The Regional Water Board determined that the Facility's ponds are exempt from the requirements of Title 27 based on the following:~~

~~**a.Secondary Effluent Equalization Pond (SEEP), and Storage Pond (SESP).** Treated domestic sewage may be stored in the SEEP facility prior to tertiary-level treatment or land application. In addition, as required by provision H.4 of Order No. R5-2004-0028, additional storage facilities (SESP) were constructed to demonstrate adequate storage capacity of treated domestic sewage during periods of incoming tides. Both the SEEP and SESP are lined with tetra, and are a necessary part of the Facility's wastewater treatment system.~~

2. **Food Receiving and Processing Wastewater Pond.** The Facility ~~also~~ accepts food-processing wastewater from Eckert Cold Storage through a separate influent collection line. The wastewater does not go to the headworks of the WQCF. Eckert

Cold Storage is a seasonal discharger that processes frozen vegetables, cabbage, and a variety of peppers. Eckert Cold Storage treats the food-processing wastewater by screening, DAF system, and pH neutralization before discharging to the Facility. The Facility stores and aerates the treated food processing wastewater in the Food Receiving and Processing Wastewater Pond, which is a ~~influent in~~ tetra-lined pond (sides walls and bottom are lined). The Discharger also provides chemical addition in the pond for odor control and additional treatment.

~~The wastewater stored in these ponds consists primarily of either domestic sewage and treated effluent; or treated food processing wastewater. Therefore the~~ The wastewater does not need to be managed as hazardous waste, and because the ~~. Moreover, all~~ pond is ~~are~~ lined~~, and therefore~~, the relatively minimal discharge to groundwater would ~~have little effect~~does not have the potential to cause ~~to~~ and exceedence of applicable water quality objectives. Thus, the discharge~~s~~ to the pond~~s~~ is in compliance with the applicable water quality control plan ~~meet the Basin Plan's water quality objectives~~. Based on these findings ~~and section 20090(b), these storage facilities are~~ the Food Receiving and Processing Wastewater Pond is exempt from the requirements of Title 27~~,~~ CCR, pursuant to either Title 27 CCR section 20090(a) or section(b).

3. **Secondary Effluent Storage Pond (SESP).** The SESP holds only secondary effluent that has been treated at the Facility. The SESP has rip/rap sidings and an unlined bottom; therefore, wastewater contained in the SESP potentially percolates to the underlying groundwater. Monitoring data obtained from the secondary effluent discharged to land, which is representative of the discharges to SESP, indicate that some constituents do not comply with the applicable water quality control plan. For example, the Basin Plan contains narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. Electrical conductivity (EC) and total dissolved solids (TDS), which were found in the representative samples at monthly average effluent concentrations of 817 µmhos/cm and 575 mg/L, respectively, have the ability to degrade the underlying groundwater quality and thereby impairing agricultural use of the groundwater. However, groundwater monitoring data has not been obtained to determine whether any attenuation beneath SESP has occurred. But based on the monitoring results of the representative samples, the wastewater in the SESP does not need to be managed as Hazardous Waste. Until the Discharger provides further information (e.g. underlying groundwater monitoring data or a site-specific study to determine the appropriate EC or TDS levels to protect the agricultural beneficial use in the vicinity of the Facility), the Regional Water Board cannot determine whether the wastewater stored in SESP, and thus the underlying groundwater, comply with the applicable water quality control plan. Because compliance cannot be determined immediately, this Order includes a compliance schedule to determine compliance with the applicable water quality control plan.

~~2~~4. **Land Application.** During the agricultural season (about late April through early October), the Discharger either directly irrigates agricultural fields with the treated food processing wastewater, or blends this treated food processing wastewater ~~influent~~ with secondary treated municipal effluent before ~~discharging~~ reusing the

wastewater onto land. Machado Dairy Farm and Dutra Farms uses these reclaimed wastewaters for irrigation purposes on their own field (APN 241-320-47), as well as on the Discharger's agricultural fields, to grow dairy feed. Both farmers have rights to other source water; however, this source water is obtained from a local reservoir that is of higher-quality and used as municipal drinking water source for several local municipalities, including the City of Manteca. Therefore, use of reclaimed wastewater for irrigation purposes on agricultural fields to grow dairy feed, in this case, serves to conserve valuable surface water drinking water supplies. Moreover, both farmers must grow the feed for the dairy cows, and thus purchasing the feed instead would cause a financial hardship. In addition, because both farmers are family owned businesses, purchasing feed would most-likely cause a family member to lose their position and thereby placing additional financial hardships. Furthermore, purchasing the feed would also raise operating costs, which could potentially raise the cost of the milk produced and thereby make the farms less competitive. The reuse of treated wastewater on the agricultural fields is exempt from Title 27 pursuant to Section 20090(h).

~~As previously stated, discharges to land are exempt from the requirements of Title 27, CCR, subject to preconditions. The principal precondition is that the discharge must be in compliance with the Basin Plan. The Discharger's groundwater monitoring data indicate that the discharge, at times, has caused the groundwater water quality to exceed water quality objectives, or background groundwater levels, as discussed in detail in section V.B of this Fact Sheet. Therefore to comply with the Basin Plan, this Order includes groundwater limits to protect applicable beneficial uses. However, immediate compliance with these new groundwater receiving water limitations is not possible or practicable, and therefore, this Order also includes a compliance schedule for achieving compliance. Consequently, at this time the reuse of wastewater on the agricultural fields does not meet the preconditions for an exemption from Title 27 under section 20090(b), or section 20090(h), because the Discharger is not meeting the groundwater limitations. The compliance schedule for the Discharger to come into compliance with the groundwater limitations also includes a compliance schedule for meeting the preconditions for the exemption from Title 27, because compliance with the groundwater limits would result in the reuse of wastewater on the agricultural fields meeting the preconditions for an exemption from Title 27.~~

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 CFR 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies

to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal regulations, 40 CFR 122.44(d)(1)(vi), further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits*."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, "*Policy for Application of Water Quality Objectives*", that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Regional Water Board's "*Policy for Application of Water Quality Objectives*")(40 CFR 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective 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 III-8.00.) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)" in Title 22 of CCR.* The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: *"Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses*."

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on CWC Section 13260 that requires filing of a report of waste discharge (ROWD) before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR Part 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on CWC Section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.

4. **Prohibition III.D (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on CFR Part 122.41 et seq. that requires the proper design and operation of treatment facilities.

5. **Prohibition III.E. (**No discharge of hazardous or designated wastes, as classified under Title 23 CCR Chapter 15, Section 2521; or CWC Section 13173, respectively) This prohibition is necessary to protect the beneficial uses of the surface and groundwater beneficial uses.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Regulations promulgated in 40 CFR 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the USEPA Administrator.

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. BOD_5 and TSS. Federal regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. Tertiary treatment is necessary to protect the beneficial uses of the receiving stream and the final effluent limitations for BOD_5 and TSS are based on the technical capability of the tertiary process. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The secondary and tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the treatment processes. The principal design parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. In applying 40 CFR Part 133 for weekly and monthly average BOD_5 and TSS limitations, the application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed. The previous Order No. R5-2004-0028 prescribed the 30-day average BOD_5 and TSS limitations at 10 mg/L; this Order carries over those limitations, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD_5 and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD_5 and TSS must be achieved by a secondary treatment plant, it must also be achieved by a tertiary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month.

b. Flow. The Facility was designed to provide a tertiary level of treatment for up to a design flow of 9.87 mgd. Therefore, this Order contains an average dry weather discharge flow effluent limit of 9.87 mgd. When the Facility's expansion projects for a design flow up to 17.5 mgd are complete and the Discharger complies with the conditions set forth in Special Provisions VI.C.6.c., this Order allows an increased average dry weather discharge flow effluent limit of 17.5 mgd (see section IV.D.3 of this Fact Sheet for detailed discussion).

c. pH. The secondary treatment regulations at 40 CFR Part 133 also require that pH be maintained between 6.0 and 9.0 standard units.

Summary of Technology-based Effluent Limitations
Discharge Point No. 001

Table F-3. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	10	15	20		
Total Suspended Solids	mg/L	10	15	20		
pH[1]	Standard Units				6.0	9.0
85% Removal of BOD 5-day @ 20ºC and Total Suspended Solids						

[1] This Order requires more stringent water quality-based effluent limits for pH. The pH is required to be maintained between 6.5 and 8.0 for protection of beneficial uses.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in section IV.C.3 of this Fact Sheet.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. Receiving Water and Beneficial Uses. The receiving stream is a tidally influenced section of the San Joaquin River located within the Sacramento-San Joaquin Delta Waterways, approximately one mile upstream of DWR's Mossdale Bridge monitoring station.

Beneficial uses applicable to the San Joaquin River within the Sacramento-San Joaquin Delta are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	San Joaquin River within the Sacramento-San Joaquin Delta	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PROC); industrial service supply (IND); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); wildlife habitat (WILD); and navigation (NAV).

b. **Effluent and Ambient Background Data.** Because the Facility has undergone major upgrades (See section II of this Fact Sheet), the reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, for inorganics and non-conventional pollutants was based on effluent data from September 2007 through August 2008, which was submitted in the Discharger's self-monitoring reports. The RPA for the remaining effluent monitoring results and for the ambient background monitoring results were based on data from 27 April 2004 through 30 December 2008 because only a single sampling per constituent was obtained since Facility upgrades, which is insufficient data to perform an RPA.

c. **Hardness-Dependent CTR Metals Criteria.** The *California Toxics Rule* (CTR) and the *National Toxics Rule* (NTR) contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1], the CTR[2] and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. In some cases, the hardness of effluent discharges changes the hardness of the ambient receiving water. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream

[1] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Regional Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces criteria that ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.

For conducting the reasonable potential analysis, the minimum observed upstream ambient hardness of 36 mg/L (as $CaCO_3$) was used to calculate the CTR hardness-dependent criteria. The remaining discussion in this section relates to the development of water quality-based effluent limits.

A 2006 Study[1] developed procedures for calculating the effluent concentration allowance (ECA)[2] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g. high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. Simply using the lowest recorded upstream receiving water hardness to calculate the ECA may result in over or under protective water quality-based effluent limitations.

The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

$$\text{CTR Criterion} = \text{WER} \times e^{m[\ln(H)]+b} \qquad \text{(Equation 1)}$$

Where:

H = = hardness (as $CaCO_3$)
WER = water-effect ratio
m, b = metal- and criterion-specific constant

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants “m” and “b” are specific to both the metal under consideration, and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

[1] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.
[2] The ECA is defined in Appendix 1 of the SIP (page Apendix 1-2). The ECA is used to calculate water quality-based effluent limitations in accordance with Section 1.4 of the SIP

$ECA = C$ (when $C \leq B$)[1] (Equation 2)

Where

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1, above)

B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as "Concave Up Metals".

ECA for Concave Down Metals – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria. Therefore, based on any observed ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion) and the minimum effluent hardness, the ECA calculated using Equation 1 with a hardness equivalent to the minimum effluent hardness is protective under all discharge conditions (i.e., high and low dilution conditions and under all mixtures of effluent and receiving water as the effluent mixes with the receiving water). This is applicable whether the effluent hardness is less than or greater than the ambient background receiving water hardness.

The effluent hardness ranged from 82 mg/L to 180 mg/L (as $CaCO_3$), based on 32 samples from April 2004 through March 2008. The upstream receiving water hardness varied from 36 mg/L to 240 mg/L (as $CaCO_3$), based on 36 samples from March 2002 through November 2006. Using a hardness of 82 mg/L (as $CaCO_3$) to calculate the ECA for all Concave Down Metals will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in the example using copper shown in Table F-5, below. This example assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 36 mg/L as $CaCO_3$)

[1] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e. $C \leq B$)

- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity).

As demonstrated in Table F-5, using a hardness of 82 mg/L (as $CaCO_3$) to calculate the ECA for Concave Down Metals ensures the discharge is protective under all discharge and mixing conditions. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. An ECA based on a lower hardness (e.g. lowest upstream receiving water hardness) would also be protective, but would result in unreasonably stringent effluent limits considering the known conditions. Therefore, in this Order the ECA for all Concave Down Metals has been calculated using Equation 1 with a hardness of 82 mg/L (as $CaCO_3$).

Table F-5: Copper ECA Evaluation

Minimum Observed Effluent Hardness			**82 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness			**36 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Copper Concentration			**3.9[1] ~~m~~µg/L**
Copper $ECA_{chronic}$[2]			**7.9 µg/L**
Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Copper[5] (µg/L)**
1%	36.46	3.9	3.9
5%	38.3	4.1	4.1
15%	42.9	4.5	4.5
25%	47.5	4.9	4.9
50%	59	5.9	5.9
75%	70.5	6.9	6.9
100%	82	7.9	7.9

1 Maximum assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 36 mg/L (as $CaCO_3$).

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 82 mg/L (as $CaCO_3$).

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction.

ECA for Concave Up Metals – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the 2006 Study demonstrates that due to a different relationship between hardness and the metals criteria, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may be out of compliance. Therefore, the 2006 Study provides a mathematical approach to calculate the ECA to ensure that any mixture of effluent and receiving water is in compliance with the CTR criteria (see Equation 3, below). The ECA, as calculated using Equation 3, is based on the reasonable

worst-case ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion), and the minimum observed effluent hardness. The reasonable worst-case ambient background hardness depends on whether the effluent hardness is greater than or less than the upstream receiving water hardness. There are circumstances where the conservative ambient background hardness assumption is to assume that the upstream receiving water is at the highest observed hardness concentration. The conservative upstream receiving water condition as used in the Equation 3 below is defined by the term H_{rw}

(Equation 3)

m, b = criterion specific constants (from CTR)

H_e = minimum observed effluent hardness

H_{rw} = minimum observed upstream receiving water hardness when the minimum effluent hardness is always greater than observed upstream receiving water hardness ($H_{rw} < H_e$)

-or-

maximum observed upstream receiving water hardness when the minimum effluent hardness is always less than observed upstream receiving water hardness ($H_{rw} > H_e$)

A similar example as was done for the Concave Down Metals is shown for silver, a Concave Up Metal, in Table F-6 through F-~~8~~9, below. As previously mentioned, the minimum effluent hardness is 82 mg/L (as $CaCO_3$), while the upstream receiving water hardness ranged from 36 mg/L to 240 mg/L (as $CaCO_3$). In this case, the minimum effluent concentration is within the range of observed upstream receiving water hardness concentrations. Therefore, Equation 3 was used to calculate two ECAs, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness. Using the assumption of no assimilative capacity at the maximum upstream receiving water hardness results in a negative ECA, which means that not all mixtures of the effluent and receiving water ~~are~~ would be in compliance with the CTR criteria if there was no assimilative capacity in the upstream receiving water based on the maximum upstream receiving water hardness. However, calculating the ECA assuming there is no assimilative capacity at the maximum upstream receiving water hardness is not supported by the data. As shown in Table F-7, the maximum upstream receiving water hardness of 240 mg/L (as $CaCO_3$) corresponds to a receiving water concentration for silver of 18.3 µg/L. But, based on the 5 receiving water samples obtained, silver was not detected and the method detection levels ranged from <0.12 µg/L to <1 µg/L, which demonstrates there is

assimilative capacity under those conditions. Therefore, in Table F-8, the ECA has been iteratively determined assuming the minimum observed upstream receiving water hardness, a maximum upstream silver concentration 0.5 µg/L (i.e., ½ of the maximum method detection limit), and the effluent at the minimum observed hardness. As shown in Table F-8, the ~~chronic~~calculated acute ECA for silver is 2.7 µg/L. Similarly, in Table F-9, the ECA is calculated using the maximum upstream silver concentration of 0.5 µg/L with maximum observed upstream receiving water hardness, and the effluent at the minimum observed hardness. Using the maximum upstream receiving water hardness, the calculated acute ECA for silver is 2.9 µg/L. In comparing the ECAs calculated in Tables F-8 and F-9, the results from using the minimum upstream hardness are controlling and the limiting acute ECA for silver is 2.7 µg/L.

Table F-6: Silver ECA Evaluation Using Minimum Receiving Water Hardness

Minimum Observed Effluent Hardness	**82 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**36 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Silver Concentration	**0.7[1] µ~~m~~g/L**
Silver ECA_{acute}[2]	**2.2 µg/L**

Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Silver[5] (µg/L)**
1%	36.5	0.7	0.7
5%	38.3	0.8	0.8
15%	42.9	0.9	0.9
25%	47.5	1.1	1.1
50%	59	1.6	1.5
75%	70.5	2.2	1.9
100%	82	2.9	2.2

1 Minimum assumed upstream receiving water silver concentration calculated using Equation 1 for acute criterion at a hardness of 36 mg/L (as $CaCO_3$).

2 ECA calculated using Equation 3 for acute criterion.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Mixed downstream ambient criteria are the acute criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient silver concentration is the mixture of the receiving water and effluent silver concentrations at the applicable effluent fraction.

Table F-7: Silver ECA Evaluation Using Maximum Receiving Water Hardness

Minimum Observed Effluent Hardness	**82 mg/L (as $CaCO_3$)**
Maximum Observed Upstream Receiving Water Hardness	**240 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Silver Concentration	**18.1[1] µ~~m~~g/L**
Silver ECA_{acute}[2]	**-2.4 µg/L**

Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Silver[5] (µg/L)**
0%	240	18.3	18.3
5%	232.1	17.3	17.5
15%	216.3	15.3	15.9
25%	200.5	13.4	14.3
50%	161.0	9.2	10.3
75%	121.5	5.7	6.3
100%	82.0	2.9	2.2

1 Maximum assumed upstream receiving water silver concentration calculated using Equation 1 for acute criterion at a hardness of 240 mg/L (as $CaCO_3$).

2 ECA calculated using Equation 3 for acute criteria.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Mixed downstream ambient criteria are the acute criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient silver concentration is the mixture of the receiving water and effluent silver concentrations at the applicable effluent fraction.

Table F-8: Silver ECA Iterative Evaluation assuming Assimilative Capactiy

Minimum Observed Effluent Hardness	**82 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**36 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Silver Concentration	**0.5[1] µ~~m~~g/L**
Silver ECA_{acute}[2]	**2.7 µg/L**

Silver ECA_{acute}[2]			**CTR Equation**	**Iterative Calculations**
Effluent Fraction	**Mixed Downstream Ambient Concentration**			
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Silver[5] (µg/L)**	**Silver[5] (µg/L)**
1%	36.5	0.7	0.5	0.5
5%	38.3	0.8	0.6	0.6
15%	42.9	0.9	0.9	0.8
25%	47.5	1.1	1.1	1.1
50%	59.0	1.6	1.7	1.6
75%	70.5	2.2	2.3	2.2
100%	82.0	2.9	2.9	2.7

1 Maximum upstream receiving water silver concentration based on monitoring data obtained from April 2004 through August 2008.

2 ECA iterative calculation using Equation 3 for acute criteria.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Mixed downstream ambient criteria are the acute criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient silver concentration is the mixture of the receiving water and effluent silver concentrations at the applicable effluent fraction.

Table F-9: Silver ECA Iterative Evaluation assuming Assimilative Capactiy

Minimum Observed Effluent Hardness	82 mg/L (as $CaCO_3$)
Maximum Observed Upstream Receiving Water Hardness	240 mg/L (as $CaCO_3$)
Maximum Assumed Upstream Receiving Water Silver Concentration	0.5[1] µg/L
Silver ECA_{acute}[2]	2.9 µg/L

Silver ECA_{acute}[2]			CTR Equation	Iterative Calculations
	Mixed Downstream Ambient Concentration			
Effluent Fraction	Hardness[3] (mg/L) (as $CaCO_3$)	CTR Criteria[4] (µg/L)	Silver[5] (µg/L)	Silver[5] (µg/L)
0%	240	18.3	0.5	--
5%	232.1	17.3	0.6	--
15%	216.3	15.3	0.9	--
25%	200.5	13.4	1.1	--
50%	161.0	9.2	1.7	--
75%	121.5	5.7	2.3	--
100%	82.0	2.9	2.9	--

1 Maximum upstream receiving water silver concentration based on monitoring data obtained from April 2004 through August 2008.

2 ECA iterative calculation using Equation 3 for acute criteria, for these conditions limited by the acute criterion at hardness of 82 mg/L (as $CaCO_3$).

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Mixed downstream ambient criteria are the acute criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient silver concentration is the mixture of the receiving water and effluent silver concentrations at the applicable effluent fraction. Iterations not necessary, as the silver concentrations are below the CTR criteria in all cases.

Using Equation 3 to calculate the ECA for all Concave Up Metals will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as previously demonstrated in Table F-6 for silver. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. Use of a lower ECA (e.g., calculated based solely on the lowest upstream receiving water hardness) is also protective, but would lead to unreasonably stringent effluent limits considering the known conditions. Therefore, Equation 3 has been used to calculate the ECA for all Concave Up Metals in this Order.

d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria, except for copper. For copper, as allowed by section 1.4.1 of the SIP, site-specific translators were used (see section 3.d.iii below).

e. **Assimilative Capacity/Mixing Zone.** The CWA directs states to adopt water quality standards to protect the quality of its waters. USEPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR 122.44 and 122.45). The USEPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California* (State Implementation Policy or SIP) and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Regional Water Board may use the USEPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) (TSD).

The allowance of mixing zones by the Regional Water Board is discussed in the Basin Plan, Policy for Application of Water Quality Objectives, which states in part, "*In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board that the mixing zone will not adversely impact beneficial uses. If allowed, different mixing zones may be designated for different types of objectives, including, but not limited to, acute aquatic life objectives, chronic aquatic life objectives, human health objectives, and acute and chronic whole effluent toxicity objectives, depending in part on the averaging period over which the objectives apply. In determining the size of such mixing zones, the Regional Board will consider the applicable procedures and guidelines in the EPA's Water Quality Standards Handbook and the TSD. Pursuant to EPA guidelines, mixing zones designated for acute aquatic life objectives will*

generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge."

Section 1.4.2 of the SIP states, in part, "…*with the exception of effluent limitations derived from TMDLs, in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers ... The applicable priority pollutant criteria and objectives are to be met throughout a water body except within any mixing zone granted by the Regional Board. The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis. The Regional Board may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board*."

For completely-mixed discharges, the Regional Water Board may grant a mixing zone and apply a dilution credit in accordance with Section 1.4.2.1 of the SIP. For incompletely-mixed discharges, the Discharger must perform a mixing zone study to demonstrate to the Regional Water Board that a dilution credit is appropriate. In granting a mixing zone, the SIP states that a mixing zone shall be as small as practicable, and meet the conditions provided in Section 1.4.2.2 as follows:

"*A mixing zone shall be as small as practicable. The following conditions must be met in allowing a mixing zone:*

A: A mixing zone shall not:

(1) compromise the integrity of the entire water body;
(2) cause acutely toxic conditions to aquatic life passing through the mixing zone;
(3) restrict the passage of aquatic life;
(4) adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;
(5) produce undesirable or nuisance aquatic life;
(6) result in floating debris, oil, or scum;
(7) produce objectionable color, odor, taste, or turbidity;
(8) cause objectionable bottom deposits;
(9) cause nuisance;
(10) dominate the receiving water body or overlap a mixing zone from different outfalls; or
(11) be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."

The effluent is discharged through a 36-inch diameter pipe located on the side bank, which provides minimal dilution. The effluent is discharged into a tidally influenced section of the San Joaquin River, in which, under critical low flow conditions, flow reversals may occur on the flood tide and prolonged near-slack water conditions may occur for various combinations of tide and San Joaquin River flow. Flow direction reversals can potentially cause accumulation of effluent and double dosing.

The Discharger developed a model in 2002 to assess dilution and mixing zones. Hydrodynamic modeling was performed using the RMA-10 model and the results were published in *Analysis of the Fate and Water Quality Impacts of the City of Manteca Discharge* (Resource Management Associates, 10 October 2000). The results of the hydrodynamic modeling were utilized in the water quality analysis that was published in *Water Quality Analysis of Surface Water Discharge* (Larry Walker Associates, October 2000). These studies demonstrated that at the permitted design flow of 9.87 mgd, the minimum dilution for chronic aquatic life criteria was 4:1 with a mixing zone that hugs the eastern shore and extends 450 feet north of the outfall, and as a result, Order No. R5-2004-0028 granted a 4:1 dilution credit for chronic aquatic criteria constituents. For human health criteria, Order No. R5-2004-0028 granted a dilution credit up to 222:1 based on safe-exposure levels for lifetime exposure utilizing the harmonic mean flow at Vernalis. But for the acute aquatic criteria, the Regional Water Board in Order No. R5-2004-0028 did not designate any dilution within the immediate vicinity of the outfall because of the limited mixing of the side-bank discharge near the outfall and the periods of slack tide that can occur at low river flows. The accuracy of the model results was questionable due in part to a lack of site data to calibrate and validate the model, and therefore, Order No. R5-2004-0028 also required the Discharger to install a flow monitoring station in the vicinity of the outfall to provide real-time data to better assess available dilution.

In 2006, the Discharger also developed a dilution study (*Near and Far Field Dilution Analysis of the Manteca Wastewater Discharge,* Resource Management Associates, October 2006) that expanded the 2002 modeling work to include atmospheric thermal exchange and field investigations. The field investigations updated the model bathymetry, and allowed calibration and validation of the plume geometry calculations. The modeling and field studies presented a spatial definition to the changes in temperature that occur in the receiving water, which was used to define a mixing zone for constituents subject to chronic aquatic and human health criterion, and dilution to be determined at the edge of the mixing zones. However, for acute aquatic criteria, the modeling and field studies demonstrated that there is limited dilution within the immediate vicinity of the outfall. Therefore, based on these findings, and that the Discharger did not provide any additional information, this Order does not allow a mixing zone nor grant dilution credits for acute aquatic criteria.

Additionally, the 2006 modeling work for chronic simulations was performed utilizing the San Joaquin River flow conditions set at the 7Q10 of 615 cfs. The dilution modeling and analysis demonstrated that the minimum dilution for chronic aquatic life criteria at the permitted design flow of 9.87 mgd was 2:1 and

at the 17.5 mgd was 1:1, with a mixing zone that extends 4100 feet north of the outfall. Based on these findings, this Order does not allow a mixing zone nor grant dilution credits for chronic aquatic criteria to provide protection to the benthic community and to minimize the impacts of the discharge to the San Joaquin River.

Finally, for the Human Health criteria, the resultant analysis based on this dilution study demonstrated that at 5280 feet north of the discharge a dilution credit for the flow of 9.87 mgd was 93:1 and for the flow of 17.5 mgd was 52:1, and that concentrations become fully mixed across the channel cross-section at approximately 5400 feet north of the outfall. This is appropriate, because for long-term human health criteria, the environmental effects are expected to occur far downstream of the discharge point where the discharge is completely mixed. Furthermore, the mixing zone is as small as practicable, will not compromise the integrity of the entire water body, restrict the passage of aquatic life, dominate the waterbody or overlap existing mixing zones from different outfalls. The discharge is approximately 20 miles from the nearest drinking water intake. Based on these findings, this Order grants human health dilution credits on a case-by-case basis.

3. Determining the Need for WQBELs

a. The Regional Water Board conducted the RPA in accordance with section 1.3 of the SIP for most constituents and based on TSD guidance, where appropriate. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency*." Therefore, in this Order the RPA procedures from the SIP were used in most cases to evaluate reasonable potential for both CTR and non-CTR constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs. Unless otherwise stated, the RPA for each constituent was conducted based on effluent data since Facility upgrades in September 2007 through December 2008, and ambient background monitoring data obtained from 27 April 2004 to 30 December 2008 (hereafter referred to as the "RPA dataset").

b. Constituents with Limited Data. Reasonable potential cannot be determined for the following constituents because representative effluent data are limited, that is data obtained since Facility upgrades, or ambient background concentrations are not available. The Discharger is required to continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring.

[1] See Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).

i. **Benzidine.** Out of 5 samples collected annually during the years 2004 through 2008, concentrations of Benzidine was estimated (J-flag) in the effluent at 3 µg/L in May 2005. The method detection level was 0.1 µg/L and the reporting level was 5 µg/L. No traces (non-detects) of Benzidine were detected, or estimated, in the remaining four samples, or in the five receiving water samples obtained during this same period.

   Benzidine is a semivolatile organic that is a manufactured chemical used mostly in dyes; however, it is no longer produced in the U.S. Since there are no known sources of Benzidine, and because Benzidine has never been detected in any other sampling results, the Regional Water Board determined that the May 2005 sample is a suspect outlier and is likely not representative of the effluent discharge. The Regional Water Board is not establishing effluent limitations for Benzidine at this time. However, this Order requires Benzidine effluent samples taken monthly for one full year, and includes a reopener should the effluent discharge demonstrate reasonable potential.

ii. **beta-Benzenehexachloride (byproduct of lindane).** Out of 5 samples collected annually during the years 2004 through 2008, beta-Benzenehexachloride (beta-BHC) was detected once in the effluent at 0.043 µg/L in April 2004. No traces (non-detects) of beta-BHC were detected, or estimated, in the remaining 4 samples, or in the 5 receiving water samples obtained during this same period. Because the Facility currently provides tertiary-level treatment, and since beta-BHC has not been detected in the effluent discharge, the Regional Water Board determined that the April 2004 sample is likely not representative of the effluent discharge now.

   Beta-BHC is a product of lindane breakdown. Lindane is a persistent chlorinated hydrocarbon pesticide that has been found in rice soils; however, effective 1 July 2007, USEPA canceled all (manufacturing) uses of lindane, and the last use date for existing stocks is 1 October 2009. Lindane has the propensity to adsorb to suspended solids and sediment in water, and therefore, filtration is an effective method of removal of both lindane, and its byproduct beta-BHC. The Regional Water Board is not establishing effluent limitations for beta-BHC at this time. However, this Order requires beta-BHC effluent samples taken monthly for one full year, and includes a reopener should the effluent discharge demonstrate reasonable potential.

c. **Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential (see Attachment G. Reasonable Potential Analysis); however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation. Based on new data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion for the following constituents:

i. **2,4,6-Trichlorophenol.** The CTR includes a 2,4,6-Trichlorophenol criterion of 2.1 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. Based on the RPA dataset, 2,4,6-Trichlorophenol was not detected (less than reporting level of 1 µg/L) in twelve effluent samples and 2,4,6-Trichlorophenol was not detected (less than reporting level of 0.2 µg/L) in seventeen upstream samples. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR water quality criterion for 2,4,6-Trichlorophenol (see Attachment G. Reasonable Potential Analysis).

ii. **Arsenic.** The primary maximum contaminant level for arsenic is 10 µg/L. Based on the RPA dataset, the MEC for arsenic in sixteen effluent samples was 8 µg/L. The maximum concentration observed in twenty-two upstream samples was 3.7 µg/L. Based on this new data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objectives for chemical constituents (see Attachment G. Reasonable Potential Analysis).

iii. **Bis (2-ethylhexyl) Phthalate**. Out of 12 samples obtained from September 2007 through August 2008, bis (2-ethylhexyl) phthalate was estimated (J-flagged) once in the effluent at 2 µg/L; and out of 17 ambient background monitoring samples obtained from April 2004 through October 2008, it was also estimated (J-flagged) once in the receiving water at 2 µg/L. For both of these effluent and receiving water samples, the method detection level was 0.9 µg/L and the reporting level was 5 µg/L.
Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. The Discharger did not collect the samples using clean hands/dirty hands techniques. Therefore, the Regional Water Board finds that the data is suspect and is not establishing effluent limitations for bis (2-ethylhexyl) phthalate at this time. Due to the suspect detections in the effluent and receiving water, this Order requires bis (2-ethylhexyl) phthalate samples taken using clean hands/dirty hands procedures and requires monthly effluent monitoring. This Order also includes a reopener provision should the effluent discharge demonstrate reasonable potential.

iv. **Bromodichloromethane.** The CTR includes a bromodichloromethane criterion of 0.56 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. Based on the RPA dataset, bromodichloromethane was not detected (less than reporting level of 0.1 µg/L) in twelve effluent samples and bromodichloromethane was estimated once at 0.3 µg/L (greater than reporting level of 0.1 µg/L but less than method detection level of 0.5 µg/L) in eighteen upstream samples. Based on this data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge does not demonstrate reasonable potential to cause or contribute

to an in-stream excursion above CTR water quality criterion for bromodichloromethane (see Attachment G. Reasonable Potential Analysis).

v. **Chlorine Residual**. Since the Facility upgrade to UV disinfection, chlorine has not been detected (less than 0.00 mg/L) in 277 effluent samples. Therefore, based on this data and the change in the disinfection process that eliminated the use of chlorine, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan narrative toxicity objective. The Discharger does not currently use chlorine in any maintenance activities at the Facility; however, the Discharger requested the option to use chlorine in the maintenance of the UV disinfection system when needed; therefore, this Order requires monitoring during occurrences when chlorine is used in the Facility's maintenance activities.

vi. **Cyanide.** The CTR includes cyanide criteria for the protection of freshwater aquatic life of 5.2 µg/L (maximum 4-day average concentration) and 22 µg/L (maximum 1-hour average concentration). Based on the RPA dataset, cyanide was not detected (less than reporting levels of 2.0 µg/L) in sixteen effluent samples and the maximum upstream receiving water concentration in fifteen samples was 5 µg/L. Based on this data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above CTR water quality criteria for cyanide.

vii. **Dibromochloromethane.** The CTR includes a criterion for dibromochloromethane of 0.41 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. Based on the RPA dataset dibromochloromethane was not detected (less than reporting levels of 0.08 µg/L) in twelve effluent samples and dibromochloromethane was estimated once at 0.2 µg/L (greater than reporting levels of 0.1 µg/L but less than method detection level of 0.3 µg/L) in eighteen upstream receiving water samples. Based on this data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR water quality criterion for dibromochloromethane.

viii. **Iron.** The Basin Plan contains a site-specific water quality objective for iron for the Sacramento-San Joaquin Delta of 300 µg/L (dissolved). Based on effluent data since Facility upgrades in September 2007 through December 2008, and ambient background monitoring data obtained from 27 April 2004 to 30 December 2008, the MEC for iron was 49 µg/L (total recoverable) and the maximum concentration observed in thirteen upstream receiving water samples was 4700 µg/L (total recoverable). Using only total recoverable iron data and assuming a dissolved-to-total metal translator of 1.0, the maximum receiving water iron concentration exceeds the Basin Plan's site-specific objective for the Sacramento-San Joaquin Delta. However, the State Water Board has upheld that a chemical translator can be applied to make the

conversion between the limits on the dissolved concentration of a regulated constituent and the total concentration in the effluent[1]. Therefore, because iron is present in the sediment, which can result in significant differences between total and dissolved iron concentrations, the Discharger conducted a one-year study (August 2005 through July 2006) to characterize the dissolved iron concentrations in the receiving water. During this study, monthly samples were obtained from the effluent and the San Joaquin River, and analyzed for total recoverable and dissolved iron concentrations. The MEC for iron observed during the study was 90 µg/L (dissolved) and 180 µg/L (total), and the maximum iron concentration observed in the San Joaquin River during this same period was 190 µg/L(dissolved) and 4400 µg/L (total). The data is shown below in Table F-~~9~~10.

[1] See Order WQO 2005-005 (Manteca).

Table F-910: Iron Study Results

Date	Effluent Iron (µg/L)		San Joaquin River Iron (µg/L)	
	Dissolved	Total	Dissolved	Total
8/23/05	<50	70	<50	1100
9/27/05	<50	120	<50	1900
11/22/05	<50	90	<50	1000
12/21/05	90	90	<50	1300
1/3/06	<50	120		
1/4/06			80	4400
2/1/06	<50	50	<50	850
“ “			<50	480
3/15/06	<50	180	<50	1600
4/26/06		70	190	9300
5/9/06	<50	70	90	1100
5/16/06	<50	<50		
5/17/06			80	1100
6/5/06	<50	70		
6/6/06			90	1700
7/4/06	<50	<50		
7/5/06			60	2400

This data confirms that it is not reasonable to assume a dissolved-to-total metal translator of 1.0, particularly for the receiving water. Therefore, since there is adequate dissolved iron data to conduct the RPA, the analysis was performed using the dissolved data. Based on the dissolved data, the discharge does not have reasonable potential to cause or contribute to an in-stream exceedance of the Basin Plan’s site-specific dissolved iron objective. Therefore, water quality-based effluent limitations are not necessary.

ix. **Manganese**. The Basin Plan contains a site-specific water quality objective for manganese for the Sacramento-San Joaquin Delta of 50 µg/L (dissolved). Based on effluent data since Facility upgrades in September 2007 through December 2008, and ambient background monitoring data obtained from 27 April 2004 to 30 December 2008, the MEC for manganese was 25.7 µg/L (total recoverable) and the maximum concentration observed in thirteen upstream samples was 230 µg/L (total recoverable). Using only total recoverable manganese data and assuming a dissolved-to-total metal translator of 1.0, the maximum receiving water manganese concentration exceeds the Basin Plan’s site-specific dissolved manganese objective for the Sacramento-San Joaquin Delta. . However, the State Water Board has upheld that a chemical translator can be applied to make the conversion between the limits on the dissolved concentration of a regulated constituent and the total concentration in the effluent[1]. Therefore, because manganese is present in the sediment, which can result in significant differences between total and dissolved manganese, the Discharger conducted a study for one

[1] See Order WQO 2005-005 (Manteca).

year (August 2005 through July 2006) to characterize the dissolved manganese concentrations in the receiving water. During this study, monthly samples were obtained from the effluent and the San Joaquin River, and analyzed for total recoverable and dissolved manganese concentrations. The MEC for manganese observed during the study was 20 µg/L (dissolved) and 25 µg/L (total), and the maximum manganese concentration observed in the San Joaquin River during this same period was 47 µg/L (dissolved) and 200 µg/L (total). The data is shown below in Table F-11~~0~~.

Table F-~~10~~11: Manganese Study Results

Date	Effluent Manganese (µg/L)		San Joaquin River Manganese (µg/L)	
	Dissolved	Total	Dissolved	Total
8/23/05	<50	8.1	<50	80
9/27/05	8.5	16	8.2	110
11/22/05	8.3	15	47	100
12/21/05	20	25	14	130
1/3/06	16	23		
1/4/06			26	200
2/1/06	6.3	12	7.9	72
“ “			6.9	64
3/15/06	14	21	<5	68
4/26/06		13	12	42
5/9/06	5.7	9.9	19	52
5/16/06	5	6.6		
5/17/06			16	48
6/5/06	6	8.8		
6/6/06			8.4	81
7/4/06	9.4	12		
7/5/06			18	190

This data confirms that it is not reasonable to assume a dissolved-to-total metal translator of 1.0. Therefore, since there is adequate dissolved manganese data to conduct the RPA, the analysis was performed using the dissolved data. Based on the dissolved data, the discharge does not have reasonable potential to cause or contribute to an in-stream exceedance of the Basin Plan’s site-specific dissolved manganese objective. Therefore, water quality-based effluent limitations are not necessary.

x. **Oil and Grease**. Order No. R5-2004-0028 requires that the effluent comply with a monthly average effluent limit of 10 mg/L and a daily maximum effluent limit of 15 mg/L to implement the Basin Plan’s narrative objective for oil and grease. Based on the RPA dataset, the MEC for oil and grease in twenty effluent samples was 0.7 mg/L and the highest monthly average concentrations was 0.6 mg/L. Based on this data since the Facility upgrades and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge no longer demonstrates reasonable

potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative objective for oil and grease and floating material. Therefore, this Order does not contain WQBELs for oil and grease. However, effluent monitoring for oil and grease is required and a receiving water limitation is included that prohibits the discharge to cause "Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses."

xi. **Settleable Solids**. Order No. R5-2004-0028 requires that the effluent comply with a daily maximum effluent limitation of 0.2 ml/L and a monthly average effluent limit of 0.1 ml/L for settleable solids to implement the Basin Plan's narrative objectives for Settleable Material. Based on the RPA dataset, Settleable Solids was not detected (less than reporting levels of < 0.1 ml/L) in 283 effluent samples obtained since Facility upgrades. Based on the availability of new data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge no longer demonstrates reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative objective for Settleable Material. This Order requires effluent monitoring and contains a receiving water limitation for Settleable Substances to prevent deposition of material that causes nuisance or adversely affects beneficial uses.

d. **Constituents with Reasonable Potential.** The Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, mercury, methylene blue active substances (MBAS), Nitrate plus nitrite, pathogens, salinity, and temperature. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Aluminum**

(a) **WQO.** The Secondary MCL for aluminum for the protection of the MUN beneficial use is 200 µg/L. In addition, USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. However, information contained in the footnotes to the NAWQC indicate that the development of the chronic criterion was based on specific receiving water conditions where there is low pH (below 6.5) and low hardness levels (below 50 mg/L as CaCO3). The San Joaquin River (SJR) has been measured to have hardness values—typically between 56 and 152 mg/L as $CaCO_3$. Because the hardness values in the SJR 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.

(b) 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 both the acute and chronic objectives. The WER Study was conducted in accordance with EPA guidance and has been reviewed and determined to be scientifically defensible *(Review of City of Manteca Aluminum Water-Effects Ratio (WER) Study*, 21 June 2007, Tetra Tech, Inc.). However, to be fully protective of the beneficial uses, the Regional Water Board determined that this WER is only applicable to the chronic objectives since the study only reflected the conditions under which the chronic objectives were determined and did not reflect the same conditions under which the acute objectives were determined. Thus, applying the final WER of 22.7 to the acute criterion may be underprotective.

(c) RPA Results. The maximum effluent concentration (MEC) for aluminum was 24.3 µg/L while the maximum observed upstream receiving water concentration was 3300 µg/L. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum of 87 µg/L and 750 µg/L, respectively.

(d) WQBELs. Applying the final WER of 22.7 to the chronic criterion only, this Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for aluminum of 407 µg/L and 750 µg/L, respectively, based on the recommended NAWQC for protection of freshwater aquatic life for aluminum. This Order also contains an annual average effluent limitation of 200 µg/L for aluminum, based on the Secondary MCL for protection of the MUN beneficial use.

(e) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 24.3 µg/L is less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. Ammonia

(a) WQO. The NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish

experienced increasing chronic toxicity effects with increasing temperature. Because the San Joaquin River within the Sacramento-San Joaquin Delta has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in the San Joaquin River is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.0, as the Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.62 mg/L.

The maximum observed 30-day rolling average temperature of the effluent and the maximum permitted effluent pH were used to calculate the 30-day CCC. The maximum observed 30-day average effluent temperature was 81.6°F (27.6°C), for the rolling 30-day period ending 31 August 2008. Using the maximum permitted pH value of 8.0 and the worst-case temperature value of 81.6°F (27.6°C) on a rolling 30-day basis, the resulting 30-day CCC is 1.05 mg/L (as N). The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.05 mg/L (as N), the 4-day average concentration that should not be exceeded is 2.62 mg/L (as N).

(b) RPA Results. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger does currently use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. The maximum effluent concentration (MEC) for ammonia was 2.1 mg/L while the maximum observed upstream receiving water concentration was 0.45 mg/L. Therefore, ammonia in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) WQBELs. The Regional Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC

was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the maximum daily effluent limitation (MDEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for Ammonia of 1.4 mg/L and 3.4 mg/L, respectively, based on the 30-day CCC .

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 2.1 mg/L and the maximum monthly average effluent concentration of 0.6 mg/L are less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. Copper.

(a) WQO. The CTR contains hardness dependent criteria for copper. Section 1.3 of the SIP contains the requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that the CTR criteria be adjusted for hardness, as applicable. In this case, the minimum observed ~~effluent~~ receiving water hardness was used to adjust the CTR criteria for copper when comparing the MEC to the criteria and ~~the minimum observed receiving water hardness was used~~ when comparing the maximum background receiving water copper concentrations to the criteria. These criteria are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The SIP, section 1.4.1, allows the discharger to complete a defensible site-specific translator study, and propose a dissolved to total recoverable translator. The Discharger conducted a copper translator study, and submitted the final results and recommendations to the Regional Water Board on 31 January 2007, "City of Manteca Copper Monitoring Study Results." The calculations of the acute and chronic translators were based on EPA and SIP guidance, and on the results of simulated 4:1 receiving water effluent samples because Order No. R5-2004-0028 granted a 4:1 dilution credit for chronic aquatic criteria constituents. However, because dilution credits are not granted for chronic aquatic criteria in this Order (see previous section IV.C.2.e of this Fact Sheet), the acute and chronic translators from the study were not used to translate dissolved copper concentrations to total concentrations. The Discharger recalculated the acute and chronic translators based on EPA and SIP guidance, and on the effluent sample results obtained during the translator study. Regional Water Board concurs with the results of the site-specific translator study, and therefore, the acute and chronic translators of 0.78 and 0.70 were used to convert the copper dissolved criteria to total recoverable criteria.

(b) RPA Results. For the effluent, the applicable copper chronic criterion (maximum 4-day average concentration) is ~~7.9~~5.6 µg/L and the applicable

acute criterion (maximum 1-hour average concentration) is ~~11.6~~6.8 µg/L, as total recoverable, based on the minimum observed upstream ambient hardness of 36 mg/L. Out of the 16 samples obtained since the Facility was upgraded to provide tertiary-level treatment in September 2007, the MEC of copper was 4.6 µg/L, which is below the lowest applicable criterion of ~~7.9~~5.6 µg/L. ~~For the receiving water, the applicable copper chronic criterion (maximum 4-day average concentration) is 3.9 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 5.4 µg/L, as total recoverable.~~ Out of the 33 receiving water samples obtained since April 2004 two samples exhibited concentration values above the water quality criteria for total copper, January 2005 at 14 µg/L and January 2006 at 9.0 µg/L. Based on this information, the discharge exhibits reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for copper.

(c) WQBELs. As discussed in detail in Section IV.C.2.c, above, based on the minimum observed effluent and receiving water hardness concentrations, no assimilative capacity for copper in the receiving water, and using the site-specific acute and chronic dissolved-to-total translator of 0.78 and 0.70, respectively, the applicable effluent concentration allowances for total recoverable copper are ~~7~~10.8 µg/L for the chronic (maximum 4-day average concentration) and 14.3 µg/L for the acute (maximum 1-hour average concentration). Using the procedures for calculating WQBELs in the Section 1.4 of the SIP, results in final effluent limitations for total recoverable copper of 10~~.2~~ µg/L and 13~~.0~~ µg/L, as the AMEL and MDEL, respectively.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 4.6 µg/L is less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. Methylene Blue Active Substances

(a) WQO. The Secondary MCL Consumer Acceptance Limit for Methlyene blue active substances (MBAS) is 500 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.

(b) RPA Results. The maximum effluent concentration (MEC) for MBAS was 290 µg/L; MBAS was not monitored in the upstream receiving water samples. However, during the years 1998 to 2002, the MEC for MBAS was 1800 µg/L, and therefore, the City submitted a correction action plan on 29 September 2003. Since then the City's operational changes and Facility upgrades have significantly reduced MBAS concentrations in the discharge. Yet, Regional Water Board staff has still observed some trace foaming in the San Joaquin River from the discharge, Therefore, due to the suspect foaming issues, the Regional Water Board determined that

MBAS in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the secondary MCL.

(c) WQBELs. This Order retains the monthly average effluent limitation for MBAS of 500 µg/L from previous Order No. R5--2004-0028.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 290 µg/L is less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. Mercury

(a) WQO. The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) RPA Results. The maximum observed effluent mercury concentration was 0.0042 µg/L. Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The San Joaquin River within the southern portion of the Sacramento-San Joaquin Delta Waterways has been listed as an impaired water body pursuant to CWA section 303(d) because of mercury and the discharge must not cause or contribute to increased mercury levels.

(c) WQBELs. This Order contains an interim performance-based mass effluent limitation of 0.69 lbs/year for mercury for the effluent discharged to the receiving water. This limitation is based on maintaining the mercury loading at the current level until a total maximum daily load (TMDL) can be established and USEPA develops mercury standards that are protective of human health. The mass limitation was carried over from the previous permit, Order No. R5-2004-0028:

If USEPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 0.0042 µg/L, which equates to 0.126 lb/year (Calculated as: [Effluent concentration (mg/L)] * [Design average daily flow

rate] * [8.34 (conversion factor)] * [365 days] = lbs/year) is less than the applicable limitation. The Regional Water Board concludes, therefore, that immediate compliance with this interim effluent limitation is feasible.

vi. Nitrate plus Nitrite

(a) WQO. DPH has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DPH has also adopted a primary MCL of 10,000 µg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1,000 µg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10,000 µg/L as Primary MCL) and NAWQC for protection of human health (10,000 µg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

(b) RPA Results. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Primary MCLs for nitrite and nitrate.

(c) WQBELs. This Order contains a final average monthly effluent limitation for nitrate plus nitrite of 10 mg/L, based on the protection of the Basin Plan's narrative chemical constituents' objective and to assure the treatment process adequately nitrifies and denitrifies the waste stream.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC for nitrate (as N) of 10.4 µg/L plus nitrite (as N) of 0.017 µg/L obtained since Faciltiy upgrades in September 2007 is slightly greater than the applicable WQBELs. However, the previous permit Order No. R5-2004-0028 contained average monthly effluent limitation for nitrate (as N) of 10 µg/L, and therefore, allowing an intermediate limitation is not consistent with the anti-backsliding requirements of the CWA and federal regulations. Therefore, immediate compliance with this effluent limitation is required in this Order.

vii. Pathogens

(a) WQO. DPH has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities."* Title 22 is not directly applicable to surface waters; however, the Regional Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the Department of Public Health's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) RPA Results. The beneficial uses of the San Joaquin River within the Sacramento-San Joaquin Delta include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Regional Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH.

(c) WQBELs. In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

In addition to coliform limitations, turbidity specifications have been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is capable of reliably meeting a turbidity specification of 2 nephelometric turbidity units (NTU) as

a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Thus, monitoring turbidity is a good operational check to ensure the treatment system was functioning properly and could meet the limits for total coliform organisms. Therefore, to ensure compliance with DPH recommended Title 22 disinfection criteria, this Order contains operational turbidity specifications to be met prior to disinfection (See Special Provisions VI.C.4.a Turbidity Operational Requirements in the Limitations and Discharge Requirements section of this Order). To be consistent with current DPH guidance the operational requirements for turbidity have been established as 2 NTU as a daily average, an instantaneous maximum of 10 NTU, and shall not exceed 5 NTU more than 5 percent of the time.

This Order contains effluent limitations and a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Regional Water Board has previously considered the factors in CWC section 13241 in establishing these requirements.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 90 MPN/ 100ml is less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

viii. Salinity

(a) WQO. The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for electrical conductivity, total dissolved solids, sulfate, and chloride. The State Water Board's Bay-Delta Plan establishes salinity water quality objectives as electrical conductivity at various compliance points in the Sacramento-San Joaquin Delta to protect beneficial uses. The USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate

Table F-~~11~~12. Salinity Water Quality Criteria/Objectives

Parameter	Secondary MCL	Bay-Delta Plan[1]	Effluent	
			Average	Maximum
EC (µmhos/cm)	900, 1600, 2200	700 (1 Apr – 31 Aug) 1000 (1 Sep – 31 Mar)	731	827
TDS (mg/L)	500, 1000, 1500	N/A	450	500
Sulfate (mg/L)	250, 500, 600	N/A	57	68

Chloride (mg/L)	250, 500, 600	N/A	132	140

[1] Compliance with the Bay-Delta Plan water quality objectives are determined at three monitoring locations in the South Sacramento-San Joaquin Delta, but apply throughout the general geographic area.

(1) Chloride. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria of 860 mg/L and 230 mg/L, respectively.

(2) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The State Water Board's Bay-Delta Plan establishes water quality objectives that apply to waters of the San Francisco Bay system and the legal Sacramento-San Joaquin Delta. As specified at page 10, "unless otherwise indicated, water quality objectives cited for a general area, such as for the southern Sacramento-San Joaquin Delta, are applicable for all locations in that general area and compliance locations will be used to determine compliance with the cited objectives." The Bay-Delta Plan's salinity objectives for the southern Sacramento-San Joaquin Delta are to protect agricultural irrigation uses, and seasonally varies from 700 µmhos/cm (1 April to 31 August) to 1000 µmhos/cm (1 September to 31 March). These objectives apply to the Facility's discharge.

(3) Sulfate. The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(4) Total Dissolved Solids. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

(b) RPA Results.

(1) Chloride. Chloride concentrations in the effluent ranged from 109 mg/L to 140 mg/L, with an average of 132 mg/L. Background concentrations in San Joaquin River ranged from 9 mg/L to 150 mg/L, with an average of 69 mg/L, for 5 samples collected by the Discharger from 27 April 2004 through 30 December 2008. These levels do not exceed the secondary MCL or the USEPA Ambient Water Quality Criteria. Therefore, there is no reasonable potential for chloride.

(2) Electrical Conductivity. A review of the Discharger's self-monitoring reports after operation of tertiary filtration/UV disinfection show a maximum monthly average EC concentration of 783 µmhos/cm (MEC) during the months April through August (irrigation season) and a MEC of 827 µmhos/cm during the months September through March (non-

irrigation season). The maximum 30-day average background receiving water EC was 949 µmhos/cm (non-irrigation season) and 763 µmhos/cm (irrigation season). These levels do not exceed the secondary MCL or the non-irrigation season objective in the Bay-Delta Plan; however, these levels exceed the irrigation season (April through August) Bay-Delta Plan salinity objective. Therefore, based on the data cited, the discharge demonstrates reasonable potential to exceed the objective.

(3) Sulfate. Sulfate concentrations in the effluent ranged from 43 mg/L to 68 mg/L, with an average of 57 mg/L. Background concentrations in San Joaquin River ranged from 11 mg/L to 170 mg/L, with an average of 75 mg/L. These levels do not exceed the secondary MCL. Therefore, there is no reasonable potential for sulfate.

(4) Total Dissolved Solids. The average TDS effluent concentration was 450 mg/L with concentrations ranging from 396 mg/L to 500 mg/L. The background receiving water TDS was measured once at a value of 411 mg/L. These levels do not exceed the secondary MCL. Therefore, there is no reasonable potential for TDS.

(c) WQBELs. Previous Order No. R5-2004-0028 originally contained seasonal EC limits of 700 and 1000 µmhos/cm, based on the Bay-Delta Plan objectives. The Discharger petitioned the Order to the State Water Board, in part, regarding the EC limits. In Order WQ 2005-0005 for the City of Manteca (Manteca Order), the State Water Board revised the seasonal EC effluent limits to only 1000 µmhos/cm on a year-round basis. The State Water Board based the revision, in part, on the following findings:

"…although discharge of treated wastewater to the Delta or its tributaries under an NPDES permit can affect EC in the southern Delta, previous State Board decisions and water quality control plans do not discuss treated effluent discharges as a source of salinity in the southern Delta."

"In the present case, the record indicates that the 700 µmhos/cm EC receiving water objective for April through August in the southern Delta frequently is not met, and that requiring the City to comply with an effluent limitation of 700 µmhos/cm EC would not significantly change the EC of water in the southern Delta area. In addition, the State Board's 1991 and 1995 Delta Plans, Revised Water Right Decision 1641, and State Board Resolution No. 2004-0062 all establish that the intended implementation program for meeting the 700 µmhos/cm EC objective was based primarily upon providing increased flows, possible construction of salinity barriers, and reducing the salt load entering the San Joaquin River from irrigation return flows and groundwater."

"The causes and potential solutions to the salinity problems in the southern Delta are highly complex subjects that have received and are

continuing to receive an unprecedented amount of attention from the State Board in the exercise of its coordinated authority over water rights and water quality. The southern Delta water quality objectives for EC referenced by the Regional Board were established in the State Board's 1995 Delta Plan. Although the ultimate solutions to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit effluent limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta."

"…the existing record supports the conclusions that: (1) assuring compliance with the 700 µmhos/cm EC limitation in the City's permit for April through August would probably require construction and operation of a reverse osmosis treatment plant for at least a portion of the City's effluent at a very large cost; and (2) because of the relatively high salinity of the receiving water and the relatively small portion of flow provided by the City's discharge, the City's use of reverse osmosis would have relatively little effect on the EC of water in the river. In addition, the State Board takes official notice [California Code of Regulations, Title 23 Section 648.2], of the fact that operation of a large-scale reverse osmosis treatment plant would result in production of highly saline brine for which an acceptable method of disposal would have to be developed. Consequently, any decision that would require use of reverse osmosis to treat the City's municipal wastewater effluent on a large scale should involve thorough consideration of the expected environmental effects."

The facts regarding the need to construct reverse osmosis to meet the 700 µmhos/cm EC standard have not changed. Since adoption of the Manteca Order the Discharger has replaced a portion of its groundwater supplies with lower salinity surface water from the South San Joaquin Irrigation District. Furthermore, the Discharger has removed the food processing wastewater from Eckhart Cold Storage from its waste-stream that is discharged to the San Joaquin River. As a result, salt reductions have been achieved in the effluent discharge. However, the Discharger is still unable to comply with the 700 µmhos/cm EC standard required in the Bay-Delta Plan during the irrigation season.

Other facts supporting the State Water Board's conclusions have changed since adoption of the Manteca Order. The State Water Board updated the Bay-Delta Plan in 2006. The update re-affirmed the seasonal standards and updated the implementation program to include regulation of treated effluent discharges to the South Delta. Furthermore, the State Water Board held in Order WQ 2009-0003 for the City of Tracy that the Clean Water Act requires compliance with existing water quality objectives pending the development of long-term or interim regulatory solutions such as revisions to existing water quality standards, a TMDL, variances, site specific objectives, or an offset policy. (p. 10 and p. 17.) Therefore, to ensure compliance with the Bay-Delta Plan and to be consistent with the most recent State Water Board Order WQ 2009-003 (City of Tracy), this

Order contains seasonal effluent limits of 700 µmhos/cm from April through August and 1000 µmhos/cm from September through March.

(d) Plant Performance and Attainability. Since adoption of previous Order No. R5-2004-0028, the Discharger replaced a portion of its groundwater supplies with lower salinity surface water from the South San Joaquin Irrigation District. As a result, salt reductions were achieved in the effluent discharge. Nevertheless, as shown in the following table, analysis of the effluent data shows that the post upgrade MEC of 783 µg/L is greater than applicable WQBELs, and therefore,appear to put the Discharger in immediate non-compliance with the EC effluent limitation.

Parameter	Effluent					
	2006		2007		2008	
	Avg	Max	Avg	Max	Avg	Max
EC, µmhos/cm	904	1107	809	917	732	827
TDS, mg/L	554	617	481	554	459	500
Chloride, mg/L	137	140	N/A[1]	136	N/A	109
Sulfate, mg/L	N/A	58	N/A[1]	52	N/A	43

Based on the data cited and subsequent analysis, a compliance time schedule for compliance with the effluent limitations is established in TSO No. R5-2009-<XXXX> in accordance with CWC section 13300. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

ix. Silver

(a) WQO. The CTR contains hardness dependent criteria for silver. Section 1.3 of the SIP contains the requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that the CTR criteria be adjusted for hardness, as applicable. In this case, the minimum observed receiving water hardness was used to adjust the CTR criteria for silver when comparing the MEC and the maximum background receiving water silver concentration to the criteria. These criteria are presented in dissolved concentrations (refer to previous section IV.C.2.c).

(b) RPA Results. For the effluent, the applicable silver acute criterion (maximum 1-hour average concentration) is 0.7 µg/L, as total recoverable, based on the minimum observed upstream ambient hardness of 36 mg/L. The CTR does not contain a chronic criterion. Since the Facility was upgraded to provide tertiary-level treatment in September 2007, only one sample was obtained for analysis (April 2008), which indicated that concentrations of silver were not detectable at the method detection level (MDL) of less than 0.12 µg/L. However, Regional Water Board staff determined that one sample is insufficient data to perform an RPA. Out of the five effluent samples obtained since April 2004, one sample indicated a MEC of silver at 0.86 µg/L, which is above the applicable criterion of

0.7 µg/L. All five receiving water samples obtained since April 2004 indicated silver concentrations values below the water quality criteria at a MDL of less than 0.1 µg/L. Based on this information, the discharge exhibits reasonable potential to cause or contribute to an in-stream excursion of the CTR criterion for silver.

(c) WQBELs. As described in detail in section IV.C.2.c above, the applicable effluent concentration allowances for total recoverable silver is 2.2 µg/L for the acute (maximum 1-hour average concentration). Using the procedures for calculating WQBELs in the Section 1.4 of the SIP, results in final effluent limitations for total recoverable silver are 1.1 µg/L and 2.0 µg/L, as the AMEL and MDEL, respectively.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 0.86 µg/L is less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

~~ix.~~x. Temperature

(a) WQO. The Thermal Plan requires that, "*The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.*"

(b) RPA Results. The discharge of municipal wastewater is an elevated temperature waste and has reasonable potential to cause or contribute to an excursion above Thermal Plan requirements.

(c) WQBELs. To ensure compliance with the Thermal Plan, an effluent limitation for temperature is included in this Order.

(d) Plant Performance and Attainability. Analysis of the effluent and receiving water data indicates that the discharge can meet the Thermal Plan requirements at the current permitted capacity of 9.87 mgd. However, based on thermal modeling conducted by the Discharger (*City of Manteca Thermal Plan Exception Analysis Final Report,* February 2006) (Thermal Exception Report) the expanded discharge of 17.5 mgd may at times not meet the Thermal Plan requirements. The Thermal Exception Report assessed impacts of the discharge on fishery resources within the vicinity of the discharge, and based on modeling results, field investigations, and a migratory fish species impact assessment, the study concludes that since the area in the receiving water in which the Thermal Plan objectives are not met is sufficiently small then there are no significant adverse effects to the most sensitive aquatic species. Thus the Discharger requested an exception to the Thermal Plan. However, the Regional Water Board defers to National Marine Fisheries Services (NMFS) expertise for determination of impacts to aquatic species; and therefore, Regional Board Staff submitted the Discharger's analysis and request to NMFS and copied the State Water Board requesting review and determination. This Order contains a reopener to allow modification of the

temperature effluent (and receiving water) limitations should NMFS concur with the Thermal Exception Report and State Water Board approve an exception to the Thermal Plan exception(s).

4. WQBEL Calculations

a. This Order includes WQBELs for aluminum, ammonia, copper, methylene blue active substances, nitrate, total coliform organisms, and electrical conductivity. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Tables F-~~5~~13 through F-16~~ and F-6~~ below, for the WQBEL calculations.

b. Effluent Concentration Allowance. For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$ECA = C + D(C - B)$ *where C>B, and*
$ECA = C$ *where C≤B*

where:
ECA = effluent concentration allowance
D = dilution credit
C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. Basin Plan Objectives and MCLs. For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. Aquatic Toxicity Criteria. WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTAacute and LTAchronic) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. Human Health Criteria. WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where:
multAMEL = statistical multiplier converting minimum LTA to AMEL
multMDEL = statistical multiplier converting minimum LTA to MDEL
MA = statistical multiplier converting acute ECA to LTA_{acute}
MC = statistical multiplier converting chronic ECA to $LTA_{chronic}$

Table F-~~12~~13. WQBEL Calculations For Aluminum

	Acute	Chronic
Criteria (µg/L) [1]	750	87
Dilution Credit	No Dilution	No Dilution
WER	--	22.7
ECA	750	1975
ECA Multiplier	0.49	0.69
LTA	368.37	1355.59
AMEL Multiplier (95th%)	1.10	[2]
AMEL (µg/L)	**407**	[2]
MDEL Multiplier (99th%)	2.04	[2]
MDEL (µg/L)	**750**	[2]

[1] USEPA Ambient Water Quality Criteria
[2] Limitations based on acute LTA (Acute LTA < Chronic LTA)

Table F-~~13~~14. WQBEL Calculations For Ammonia

	Acute	30-day Chronic	4-day Chronic
Criteria (µg/L) [1]	5.62	1.05	2.62
Dilution Credit	0	0	0
ECA	5.62	1.05	2.62
ECA Multiplier	0.21	0.674[2]	0.38
LTA	1.2	0.71	11.0
AMEL Multiplier (95th%)	[3]	1.92	[3]
AMEL (µg/L)	[3]	**1.4**	[3]
MDEL Multiplier (99th%)	[3]	4.79	[3]
MDEL (µg/L)	[3]	**3.4**	[3]

[1] USEPA Ambient Water Quality Criteria
[2] Calculated based on the TSD modification presented in the 22 December 1999 Federal Register notice where $\sigma^2 = \ln(CV^2/30 + I)$
[3]…Limitations based on 30-day chronic LTA (Acute LTA < Chronic LTA)

Table F-~~14~~15. WQBEL Calculations For Copper

	Acute	Chronic
Hardness (mg/L as $CaCO_3$)	82	82
Criteria (µg/L) [1]	11.1	7.6
Translator[2]	0.78--	0.70
Criteria (µg/L, total recoverable)	14.3	10.8
Dilution Credit	0.0	0.0
ECA[3]	14.3	10.8
ECA Multiplier[4]	0.68	0.82
LTA	9.8	8.9
AMEL Multiplier (95th%)[5]	[6]	1.1
AMEL (µg/L)	[6]	**10.2**
MDEL Multiplier (99th%)	[6]	1.5
MDEL (µg/L)	[6]	**13.0**

[1.] Metals are expressed as dissolved concentrations.
[2] Site-specific Translators used.
[3.] ECA calculated per Section 1.4.B, Step 2 of the SIP. This allows for the consideration of dilution.
[4.] Acute and Chronic ECA Multiplier calculated at 99th percentile per Section 1.4.B, Step 3 of SIP or per Sections 5.4.1 and 5.5.4 of the TSD.
[5.] Assumes sampling frequency n = >4
[6.] Limitations based on 30-day chronic LTA (Acute LTA > Chronic LTA)

Table F-16. WQBEL Calculations For Silver

	Acute
ECA[1]	2.2
ECA Multiplier[2]	0.32
LTA	0.7
AMEL Multiplier (95th%)[3]	1.6
AMEL (µg/L)	**1.1**
MDEL Multiplier (99th%)	3.1
MDEL (µg/L)	**2.0**

[1.] ECA determined as detailed in Section IV.C.2.c of the Fact Sheet.
[2.] Acute ECA Multiplier calculated at 99th percentile per Section 1.4.B, Step 3 of SIP.
[3.] Assumes sampling frequency n = >4

Summary of Water Quality-Based Effluent Limitations
Discharge Point No. 001

Table F-~~15~~17. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum, Total Recoverable	µg/L	407	200[1]	750		
Ammonia, Total (as N)	mg/L	1.4		3.4		
Copper, Total Recoverable	µg/L	10.2		13.0		
Silver, Total Recoverable	µg/L	1.1		2.0		
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, BOD_5, 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 of 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 $CaCO_3$). 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 Mant~~e~~ica 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 form 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. In addition, this Order provides a time schedule for the Discharger to conduct a site-specific investigation of the appropriate TDS levels to protect the beneficial use of agricultural supply, and a requirement to implement additional BPTCs should the findings of the study determine that additional measures are necessary (See Special Provisions VI.C.2.b. and c. in the Limitations and Discharge Requirements section of this Order). 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 BOD_5, 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-~~16~~18. 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			
Silver, Total Recoverable	µg/L	1.1		2.0			
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 April to 31 August)	µmhos/cm	700					
Electrical Conductivity (1 Sept to 31 March)	µmhos/cm	1000					
Temperature	ºF			[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:
Mass (lbs/day) = flow rate (mgd) x 8.34 x 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 $CBOD_5$ 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-~~17~~19. 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			
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			

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Silver, Total Recoverable	µg/L	1.1		2.0			
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 Sept to 31 March)	µmhos/cm	1000					
Electrical Conductivity (1 April to 31 August)	µmhos/cm	700					
Temperature	ºF			[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:
Mass (lbs/day) = flow rate (mgd) x 8.34 x 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 $CBOD_5$ 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, BOD_5, 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 BOD_5 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 BOD_5 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 monitoring data show nitrate concentrations above the primary MCL of 10 mg/L in monitoring wells MW-3 and MW-5. The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California MCLs in groundwater that is designated as municipal or domestic supply. The California primary MCL for nitrate is equivalent to 10 mg/L as nitrogen, and groundwater beneath the facility is designated as municipal or domestic supply. It is therefore appropriate to adopt a numerical groundwater limitation of 10 mg/L for nitrate as nitrogen to implement the Chemical Constituents objective to protect the municipal and domestic use of 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 Amoore and Hautala [1], who evaluated odor of ammonia in water, the odor threshold for ammonia in water is 1.5 mg/L (as NH_4). 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

[1] Amoore, 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).

of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 1.5 mg/L for ammonia (as NH_4), based on Amoore 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 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., BOD_5 and TSS reduction requirements). The monitoring frequencies for BOD_5, 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, BOD_5, 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.

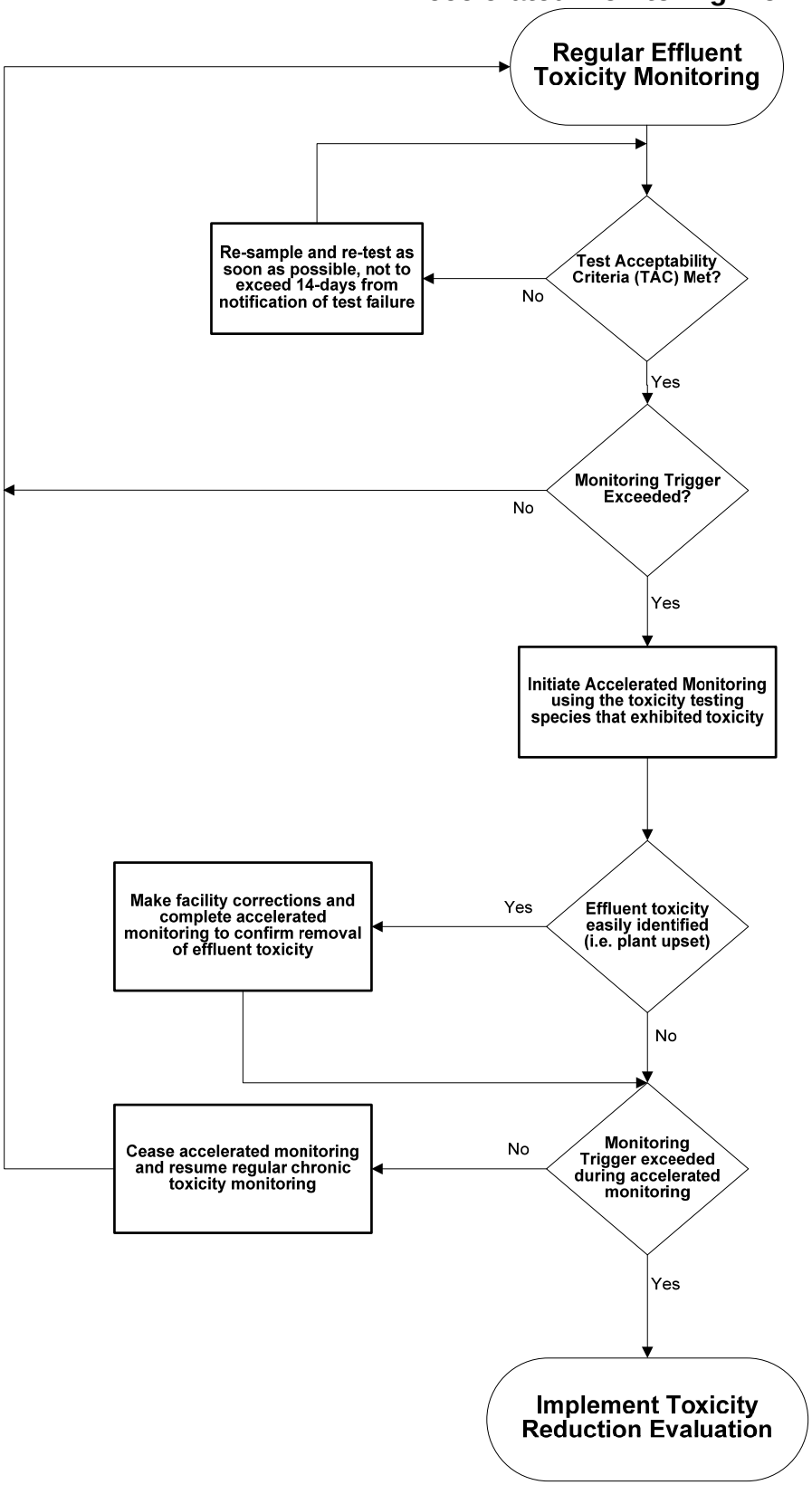
The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water 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

c. 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.xii> of this Fact Sheet.

d. 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 the following **[Describe Notification Process (e.g., newspaper name and date)]**

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 **<DATE>**.

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:	**<Public Hearing Date>**
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]1.4	[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	~~7~~5.6	~~11.6~~ 6.8	~~7~~5.6	None	None	10	10	Yes
Lead	µg/L	0.7	0.6	~~1.6~~0.9	[2]22	[2] 0.9	None	None	15	15	No
Mercury	µg/L	0.0042	0.0182	0.050	None	None	0.050	0.051	Narrative	2	Yes[23]
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]0.7	[2]0.7	[2]None	None	None	10	100	~~No~~Yes
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[34]
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	[45]	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

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Methyl Bromide	µg/L	<0.07	<0.07	48	None	None	48	4000	Narrative	None	No
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-Dicloroethylene	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[34]
2,4-Dichlorophenol	µg/L	<0.2	<0.4	0.3	None	None	93	790	Narrative	None	No[34]
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
Acenephthylene	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[34]
Benzo(a)Anthracene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[34]
Benzo(a)Pyrene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	0.2	No[34]
Benzo(b)Fluoranthene	µg/L	<0.2	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[34]
Benzo(ghi)Perylene	µg/L	<0.4	<0.3	[45]	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[34]
Bis(2-Chlorethoxy)Methane	µg/L	<0.2	<0.3	[45]	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	[45]	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[34]

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Dibenzo(a,h)Anthracene	µg/L	<0.3	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[34]
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[34]
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[34]
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[34]
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[34]
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[34]
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[34]
N-Nitrosodi-n-Propylamine	µg/L	<0.2	<0.7	0.005	None	None	0.005	1.4	Narrative	None	No[4]
N-Nitrosodiphenylamine	µg/L	<0.1	<0.3	5	None	None	5.0	16	Narrative	None	No
Phenanthrene	µg/L	<0.1	<0.3	[45]	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[34]
alpha-BHC	µg/L	<0.005	<0.005	0.0039	None	None	0.0039	0.013	Narrative	None	No[34]
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	[45]	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[34]
4,4-DDT	µg/L	<0.005	<0.005	0.00059	1.1	0.001	0.00059	0.00059	Narrative	None	No[34]
4,4-DDE	µg/L	<0.005	<0.005	0.00059	None	None	0.00059	0.00059	Narrative	None	No[34]
4,4-DDD	µg/L	<0.01	<0.01	0.00083	None	None	0.00083	0.00084	Narrative	None	No[34]
Dieldrin	µg/L	<0.005	<0.005	0.00014	0.24	0.056	0.00014	0.00014	Narrative	None	No[34]
alpha-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
beta-Endosulfan	µg/L	<0.005	<0.005	0.056	0.22	0.056	110	240	Narrative	None	No
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[~~3~~4]
Heptachlor Epoxide	µg/L	<0.005	<0.005	0.0001	0.52	0.0038	0.0001	0.00011	Narrative	0.01	No[~~3~~4]
PCBs sum	µg/L	<0.1	<0.1	0.00017	None	0.014	0.00017	0.00017	Narrative	0.5	No[~~3~~4]
Toxaphene	µg/L	<0.1	<0.1	0.0002	0.73	0.0002	0.00073	0.00075	Narrative	3	No[~~3~~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[3]
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[~~2~~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[~~2~~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) NAWQQC – Water & Fish
~~(2)Refer to Section VI.C.2.c. of Attachment F in this Order~~
~~(3)~~(2) Demonstrates Reasonable Potential based on other information
~~(4)~~(3) Analyzed using the lowest ML for approved methods
~~(5)~~(4) 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	^{o}F		
	Total Disolved 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 Fluoresence, 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.