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:

   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 – Not Applicable

VII. RECLAMATION MONITORING REQUIREMENTS

A. Monitoring Location REC-001

1. The Discharger shall monitor reclaimed water used to irrigate on-site landscaping for exterior decorative fountains at REC-001 as follows:

Table E-5. Reclamation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Volume of recycled water[1,2]	acre-feet	Varies	1/Month	--
Total area of application	acres	Observation	1/Month	--
Nitrogen application rate[3,4]	lbs/acre/month	Calculated	1/Month	--

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Salinity application rate[5]	lbs/acre/month	Varies[1]	1/Month[1]	--

[1] Estimation of the volume of recycled water shall not include other potable or non-potable "make-up" water also used to irrigate landscape, if any.
[2] May be estimated based on daily percentage of recycled water supplied via a non-potable water supply system.
[3] Nitrogen application rate shall consider nutrients contained in the recycled water, based on monthly analytical data provided by the Discharger to the Regional Water Board.
[4] Nitrogen concentrations shall be calculated and reported "as N." For example, nitrate-nitrogen = 27 mg/L (as NO_3) shall be converted and reported as nitrate-nitrogen = 6 mg/L (as N).
[5] Salinity application rate shall be calculated using the applied volume of recycled, actual application area, the most recent results for the concentration of total dissolved solids in the recycled water.

2. Each month, the Discharger shall verify that the recycled water has been filtered and disinfected consistent with the criteria for disinfected tertiary recycled water. The Discharger shall track turbidity and disinfection parameters. Exceedances of turbidity or disinfection standards[1] shall be documented and explained.

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Orchard Creek at RSW-001 and RSW-002 as follows:

Table E-6. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/Week[1]	[2]
Priority Pollutants				
Priority Pollutants and Other Constituents of Concern[3]	µg/L	Grab	[4]	[5,6,7]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Quarter	[2]
Dissolved Oxygen	mg/L	Grab	1/Week	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[2]
Fecal Coliform Organisms	MPN/100 mL	Grab	1/Week	[2]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month	[2]
Temperature	°C	Grab	1/Week[1]	[2]
Turbidity	NTU	Grab	1/Week	[2]

[1] Title 22, Sections 60301.320, 60301.230(a), and 60301.230 (b).

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] Monitoring for pH and temperature shall be conducted concurrently with ammonia sampling.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[3] See List of Priority Pollutants and Other Pollutants of Concern in Attachment I.
[4] Priority pollutants shall be sampled quarterly at RSW-001 during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for priority pollutants. See Attachment I for more detailed requirements related to performing the priority pollutant monitoring.
[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

2. In conducting the receiving water monitoring, a log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002. Attention shall be given to the presence or absence of:

   a. Floating or suspended matter;
   b. Discoloration;
   c. Bottom deposits;
   d. Aquatic life;
   e. Visible films, sheens, or coatings;
   f. Fungi, slimes, or objectionable growths; and
   g. Potential nuisance conditions.

   Notes on receiving water conditions shall be summarized in the monitoring report.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected annually 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 (Division 4, Chapter 15, Article 4, §64431).

b. 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.

B. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the municipal water supply at SPL-001 as follows.

Table E-7. Municipal Water Supply Monitoring Requirements

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

[1] If the water supply is from more than one source, electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

C. Ultraviolet Disinfection System

1. Monitoring Location UVS-001

The Discharger shall monitor the UV disinfection system at UVS-001 as follows:

Table E-8. Ultraviolet Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow rate	MGD	Meter	Continuous[1]
Turbidity[2]	NTU	Meter[3]	Continuous[1]
Number of UV banks in operation	Number	Meter	Continuous[1]
UV Transmittance	Percent (%)	Meter	Continuous[1]
UV Power Setting	Percent (%)	Meter	Continuous[1]
UV Dose[4]	MW-sec/cm^2	Calculated	Continuous[1]

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities, including date, time of day, and duration, in which the analyzer(s) is not in operation.
[2] Report daily average turbidity and maximum. If the influent exceeds 10 NTU, collect a sample for total coliform organisms and report the duration of the turbidity exceedance.
[3] The turbidity meter shall be stationed immediately after the filters, prior to the UV disinfection process.
[4] 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, 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 Orchard Creek, report the duration and dose calculation variables associated with each incident.

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.

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

Table E-9. 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	First day of second calendar month following month of sampling
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	First day of second calendar month following month of sampling
1/Week	First Sunday of the calendar month following the permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following month of sampling
3/Week	First Sunday of the calendar month following the permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following month of sampling

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
1/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	First day of second calendar month following month of sampling
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date	1 January through 1 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
1/Year	1 January following (or on) permit effective date	1 January through 31 December	1 February

4. **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.

5. **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).

6. **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.

7. 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) – Not Applicable

D. Other Reports

1. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, or TRE/TIE required by Special Provisions VI.C. 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.

2. 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.

3. 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.

4. **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.

5. **Annual Recycled Water Report.** By 15 April of each year, the Discharger shall compile information for the use area consistent with the format in Attachment M and submit to the Regional Water Board. The submittal shall also contain the following items:

   a. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with this Order.

   b. A description of the measures employed by the Discharger during the reporting period to conduct periodic inspections of the use area. The description shall include the following elements: date of inspections, description of any violations identified during the reporting period including any indications of unauthorized cross-connections, and all actions taken or planned for correcting violations, such as operation or facility modifications.

   The periodic inspection shall also include an evaluation verifying that the application of recycled water to the use area occurs at reasonable agronomic rates. The agronomic rate evaluation shall consider all applied nutrients from all sources (directly applied and as contained in the recycled water) the seasonal nutrient demand for the specific plants being grown, soil, and climate. If the agronomic rate evaluation determines that exceedances of the agronomic rate may be occurring, the Discharger shall implement corrective actions to ensure recycled water use occurs at reasonable agronomic rates.

   If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory.

   c. A description of approved amendments to the Title 22 Engineering Report, if any.

      i. A description of new use sites approved by DPH or USEPA. The description shall include information necessary for the DPH or USEPA to evaluate new use sites pursuant to the Title 22 Requirements. Examples of necessary information may include location of backflow prevention devices, drinking fountains, groundwater wells, etc.

      ii. Copies of approval letter(s) prepared by DPH or USEPA regarding such amendments to the Title 22 Engineering Report.

6. **Recycled Water Spill Reporting**

   a. The Discharger shall report any noncompliance that may endanger human health or the environment. The Discharger shall immediately report orally, or electronically if available, information of the noncompliance as soon as (1) the Discharger has knowledge of the discharge, (2) notification is possible, and (3)

notification can be provided without substantially impeding cleanup or other emergency measures, to the Regional Water Board.

A written report shall also be provided to the State Water Board within five (5) business days of the time the Discharger becomes aware of the incident. The written report shall contain a description of the noncompliance and its cause, the period of noncompliance, the anticipated time to achieve full compliance, and the steps taken or planned, to reduce, eliminate, and prevent recurrence of the noncompliance.

b. The unauthorized discharge of 50,000 gallons or more of "disinfected tertiary recycled water" shall be reported as described in section X.D.6.a above. The unauthorized discharge of 1,000 gallons or more of "disinfected tertiary recycled water" shall be reported to the Regional Water Board as soon as possible, but no later than seventy-two (72) hours after becoming aware of the unauthorized discharge.

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	5A31CR00033
Discharger	United Auburn Indian Community
Name of Facility	Thunder Valley Casino Wastewater Treatment Plant
Facility Address	1200 Athens Avenue
	Lincoln, CA 95648
	Placer County
Facility Contact, Title and Phone	Greg Baker, United Auburn Indian Community, (916) 240-4232 and (530) 883-2385
Authorized Person to Sign and Submit Reports	Jessica Tavares, Chairperson, (530) 883-2390
Mailing Address	10720 Indian Hill Road, Auburn, CA 95603
Billing Address	Same as Facility Address
Type of Facility	Publicly owned treatment works (POTW)
Major or Minor Facility	Minor
Threat to Water Quality	1
Complexity	A
Pretreatment Program	N/A
Reclamation Requirements	Producer – Land Irrigation
Facility Permitted Flow	Existing – 0.35 million gallons per day (MGD) Proposed (first phase) – 0.7 MGD Proposed (second phase) – 0.875 MGD
Facility Design Flow	Existing – 0.35 MGD, peak daily flow capacity Proposed (first phase) – 0.7 MGD Proposed (second phase) – 0.875 MGD
Watershed	Lower Sacramento
Receiving Water	Orchard Creek
Receiving Water Type	Inland Surface Water

A. The United Auburn Indian Community (hereinafter Discharger) is the owner and operator of the Thunder Valley Casino Wastewater Treatment Plant (hereinafter Facility), a POTW.

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 Orchard Creek, a water of the United States, and is currently regulated by Order No. R5-2005-0032 which was adopted on 17 March 2005 and expires on 1 March 2010.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 4 January 2008. Supplemental information was requested on 13 March 2009, 2 April 2009, and 20 May 2009 and received on 31 March 2009, 15 April 2009, and 22 May 2009, respectively. Supplemental information supporting the Discharger's antidegradation analysis was received on 26 October 2009. A site visit was conducted on 14 May 2009 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the Thunder Valley Casino, a gaming and entertainment facility. As described further in section II.E of this Fact Sheet (Attachment F), the Discharger is currently planning to upgrade the Facility to accommodate the expansion of the existing gaming and restaurant facilities and the addition of a hotel, performing arts center, and parking structure.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system consists of an influent pump station, headworks (flow measurement and fine screening), immersed membrane bioreactor (IMB), and ultraviolet (UV) light disinfection. The IMB combines an anoxic zone, aeration, clarification, and membrane filtration in a single tank. The filtration stage is a microfiltration process, in which wastewater is pulled by vacuum through membranes. The filter membrane nominal pore size is 0.1 microns. The current design peak daily flow for the treatment system is 0.35 MGD. As needed, sludge is pumped directly from the process overflow tank to two belt filter presses and then trucked off-site to a local landfill.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 32 and 33, T12N, R6E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. 001 to Orchard Creek, a water of the United States and a tributary to Auburn Ravine, East Side Canal, Cross Canal, and the Sacramento River at a point latitude 38° 50' 44" N and longitude 121° 19' 01" W.

3. A portion of the treated municipal wastewater is also recycled and used on-site. The specific recycled water use areas include irrigation of the landscaping surrounding the Thunder Valley Casino and the Facility.

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

Effluent limitations contained in Order No. R5-2005-0032 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2005-0032 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From April 2005 to December 2008)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10[1]	15[1]	20[1,2]	NR	NR	6
	lbs/day[3]	29	44	58	NR	NR	7.9
	% Removal	85	--	--	95[4]	--	--
Total Suspended Solids	mg/L	10[1]	15[1]	20[1,2]	NR	NR	ND
	lbs/day[3]	29	44	58	NR	NR	ND
	% Removal	85	--	--	81[4]	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[5]	23[6]	--	--	350
Settleable Solids	ml/L	0.1	--	0.2	NR	--	ND
Turbidity	NTU	--	5.0[7]	2.0[2]	--	--	10
Persistent Chlorinated Hydrocarbon Pesticides	µg/L	--	--	ND[8]	--	--	0.246[9]
Aluminum, Total Recoverable	µg/L	71[1,10]	--	143[1,2,10]	118	--	118
	lbs/day[3]	0.21	--	0.42[2]	0.136	--	0.136
Atrazine	µg/L	1.0	--	--	ND	--	--
	lbs/day[3]	0.003	--	--	ND	--	--
Boron	µg/L	700	--	--	2,500	--	--
	lbs/day[3]	2.0	--	--	2.59	--	--
Fluoride	µg/L	1,000	--	--	570	--	--
	lbs/day[3]	2.9	--	--	0.72	--	--
Methylene Blue Active Substances (MBAS)	µg/L	500	--	--	140	--	--
	lbs/day[3]	1.5	--	--	NR	--	--
Nitrate (as N)	µg/L	10,000	--	--	3,200	--	--
	lbs/day[3]	29	--	--	4.2	--	--
Sulfate	µg/L	250,000	--	--	61,000	--	--
	lbs/day[3]	730	--	--	79	--	--
Arsenic, Total Recoverable	µg/L	10[1]	--	--	3.1	--	--
	lbs/day[3]	0.03	--	--	0.003	--	--
Total Trihalomethanes[11]	µg/L	80	--	--	4	--	--
	lbs/day[3]	0.23	--	--	0.005	--	--

Parameter	Units	Effluent Limitation			Monitoring Data (From April 2005 to December 2008)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Electrical Conductivity (EC)	µmhos/cm	700	--	--	1,323	--	--
Total Chlorine Residual	mg/L	--	0.01[12]	0.02[13]	--	--	0.001
	lbs/day[3]	--	0.03[12]	0.06[13]	--	--	NR
Ammonia	mg/L	0.42	--	3.5[13]	NR	--	1.2
	lbs/day[3]	1.2	--	10.2[13]	NR	--	NR
Copper	mg/L	--	--	72[14]	24	--	24
		1.6[1,15]	--	3.1[1,2,15]			
	lbs/day[3]	--	--	0.21[14]	0.03	--	0.03
		0.0047[15]	--	0.0091[2,15]			
Bromoform	µg/L	--	--	21[16]	ND	--	ND
		4.3[17]	--	8.6[17]			
	lbs/day[3]	--	--	0.06[16]	ND	--	ND
		0.013[17]	--	0.03[17]			
Dibromochloromethane	µg/L	--	--	87[16]	1.8	--	1.8
		0.41[17]	--	0.82[17]			
	lbs/day[3]	--	--	0.25[16]	0.002	--	0.002
		0.001[17]	--	0.002[17]			
Dichlorobromomethane	µg/L	--	--	81[16]	ND	--	ND
		0.56[17]	--	1.1[17]			
	lbs/day[3]	--	--	0.24[16]	ND	--	ND
		0.002[17]	--	0.003[17]			
pH	standard units	--	--	6.5 – 8.5	--	--	6.4 – 8.3
Influent Flow	million gallons	--	--	0.35	--	--	NR
Acute Toxicity	% Survival	--	--	[18]	--	--	95[4]

Parameter	Units	Effluent Limitation			Monitoring Data (From April 2005 to December 2008)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

NR – Not reported
ND – Non-detect

1 To be ascertained by a 24-hour composite.
2 Applied as a daily average effluent limitation.
3 Based on a maximum daily treatment capacity of 0.35 MGD.
4 Represents the minimum value reported.
5 Applied as a 7-day median effluent limitation.
6 Applied as an instantaneous maximum effluent limitation.
7 The turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period. At no time shall the turbidity exceed 10 NTU.
8 ND (non-detectable), the non-detectable limitation applies to each individual pesticide at any detection level. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use EPA standard analytical techniques that have the lowest possible detectable level for persistent chlorinated hydrocarbon pesticides.
9 Value reported in May 2006 and represents the sum of delta BHC (detected at 0.066 µg/L) and endrin aldehyde (detected at 0.18 µg/L). Follow-up samples were ND.
10 Compliance 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 as approved by the Executive Officer.
11 Total trihalomethanes is the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane.
12 Applied as a 4-day average effluent limitation.
13 Applied as a 1-hour average effluent limitation.
14 Interim effluent limitation effective until 1 March 2010, as specified in Resolution No. R5-2007-0143.
15 Final effluent limitation effective from 1 March 2010 forward, as specified in Resolution No. R5-2007-0143.
16 Interim effluent limitation effective until 11 March 2008.
17 Final effluent limitation effective from 11 March 2008 forward.
18 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%

D. Compliance Summary

1. The Regional Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2006-0502 on 7 March 2006, which proposed to assess an administrative civil liability of $435,000 against the Discharger for violations of Order Nos. 5-01-068 and R5-2005-0032 between September 2003 and January 2005. A Settlement Agreement and Mutual Release was entered into by the Discharger and the Assistant Executive Officer of the Regional Water Board on 31 January 2007, in which the Discharger agreed to pay $150,000 to the State Water Board's Cleanup and Abatement Account and complete the John D. Vincent Vernal Pool Preserve Enhancement Plan Supplemental Environmental Project at a cost of no less than $150,000.

2. An inspection of the Facility was conducted on 5 December 2007. The following is a summary of the major findings from the inspection report:

   a. A chemical tube was laid across the roadway and was vulnerable to damage. The measures taken to reduce the probability of damage did not address the potential for damage to the treatment system.

   b. Some chemicals were stored without secondary containment and had the potential to drain into the treatment system via the Facility's storm drain system.

   c. One sample storage refrigerator did not have a thermometer, which is needed to demonstrate compliance with sample handling requirements.

E. Planned Changes

As part of their application, the Discharger identified plans to expand the treatment capacity of the existing on-site IMB tertiary wastewater treatment plant in two phases to accommodate expansion of existing gaming and restaurant facilities and the addition of a hotel, performing arts center, and parking structure. As a result, the Discharger has requested authorization to increase the design peak daily flow capacity from 0.35 MGD to 0.7 MGD in the first phase and to 0.875 MGD in the second phase. The expansion of the Facility will include improvements to influent screening, biological treatment, and membrane filtration capacity, effluent disinfection, and the discharge outfall diffuser. The first phase of the expansion of the Facility is expected to be completed by summer 2010. This Order authorizes the discharge of up to 0.7 MGD and 0.875 MGD after notification to the Regional Water Board as specified in detail in sections VI.C.6.a, b, and c of the Order.

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 September 2009), for the Sacramento and San Joaquin River Basins* (Basin 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 the Fact Sheet (Attachment F, 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 the Fact Sheet (Attachment F, 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 (RPA) 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. The State Water Board does not require wastewater treatment facilities with design flows less than 1 MGD to obtain coverage under the Industrial Stormwater General Order. This Order does not regulate storm water.

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

1. 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.*" Orchard Creek, Auburn Ravine, East Side Canal, and Cross Canal are not listed on the 303(d) list of impaired water bodies. The Sacramento River from Knights Landing to the Delta is listed as a WQLS for mercury and unknown toxicity in the 303(d) list of impaired water bodies. Effluent limitations for mercury are included in this Order.

2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Regional Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. TMDLs have not been adopted for Orchard Creek, Auburn Ravine, East Side Canal, Cross Canal, or the Sacramento River from Knights Landing to the Delta.

   The 303(d) listings have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section VI.C.3. of this Fact Sheet.

E. Other Plans, Policies and Regulations

1. **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 does not contain unlined treatment or storage facilities. The facility provides tertiary treated wastewater for landscape irrigation where a determination has been made by the Central Valley Water Board that the facilities meet the exemptions from Title 27 for Reuse. The Regional Water Board's findings regarding Title 27 exemptions is based on the discharge associated with the use of tertiary treated recycled water in accordance with the exemption provided in Title 27, pursuant to Title 27 CCR section 20090(b)(h).

F. Tribal Council Resolution No. 1-26-10-01 Approving A Limited Waiver of Sovereign Immunity. As described further in the finding at section II.T of the Order, the Tribal Council for the United Auburn Indian Community adopted Resolution No. 1-26-10-01 on 26 January 2010, recognizing this Order as a legal and binding obligation of the Discharger and acknowledging and consenting to a Limited Waiver of Sovereign Immunity. Tribal Council Resolution No. 1-26-10-01 is attached hereto as Attachment N.

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. Surface Water Discharge Prohibitions

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, provided that the bypass does not cause violation of effluent and/or receiving water limitations.

2. Reclaimed Water Prohibitions

The Discharger uses tertiary treated wastewater to irrigate on-site landscaping for exterior decorative fountains. The State Water Board adopted Resolution No. 2009-0011 on 3 February 2009 adopting the Recycled Water Policy. The purpose of the

Recycled Water Policy was to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code Section 13050(n), in a manner that implements state and federal water quality laws. When used in compliance with the Policy, Title 22, and all applicable state and federal water quality laws, the State Water Board found that recycled water is safe for the approved uses, and strongly supports recycled water as a safe alternative to potable water for such approved uses. On 7 July 2009, the State Water Board adopted Water Quality Order (WQO) No. 2009-0006-DWQ, General WDRs for Landscape Irrigation Uses of Municipal Recycled Water, the purpose of which was to streamline the regulatory process for uses of recycled water for landscape irrigation. In keeping with the intent of the Recycled Water Policy, this Order contains recycled water prohibitions consistent with WQO No. 2009-0006-DWQ. These requirements are necessary to ensure that the use of reclaimed water does not unreasonably affect present and anticipated beneficial uses of groundwater and surface water.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 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 and Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3

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 30-day average BOD_5 and TSS limitations have been revised to 10 mg/L, 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 treat a peak flow capacity of 0.35 MGD. The Discharger is proposing to expand the Facility and increase the peak flow capacity to 0.7 MGD in the first phase of expansion and 0.875 MGD in the second phase of expansion. Order No. R5-2005-0032 required that the maximum daily influent flow shall not exceed 0.35 million gallons. Due to the fact that the configuration of the existing IMB process allows for flows higher than the design influent flow without impact to the treatment process, this Order revises the flow limitations to regulate the effluent flow rather than the influent flow. Until expansion of the Facility, this Order will require that the maximum daily effluent flow shall not exceed 0.35 MGD. Upon completion of the first phase of expansion of the Facility, this Order requires that the maximum daily effluent flow shall not exceed 0.7 MGD. Upon completion of the second phase of expansion of the Facility, this Order requires that the maximum daily effluent flow shall not exceed 0.875 MGD.

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.

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	--	0.35[1]	--	--
		--	--	0.7[2]	--	--
		--	--	0.875[3]	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 25°C)	mg/L	10	15	20	--	--
	lbs/day[1,4]	29	44	58	--	--
	lbs/day[2,5]	58	88	117	--	--
	lbs/day[3,6]	73	109	146	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1,4]	29	44	58	--	--
	lbs/day[2,5]	58	88	117	--	--
	lbs/day[3,6]	73	109	146	--	--
pH	standard units	--	--	--	6.5	8.5

1 Applicable until completion of the first phase of upgrades to the Facility.
2 Applicable upon completion of the first phase of upgrades to the Facility and until completion of the second phase of upgrades to the Facility.
3 Applicable upon completion of the second phase of upgrades to the Facility.
4 Based on the maximum daily effluent flow of 0.35 MGD.
5 Based on the maximum daily effluent flow of 0.7 MGD.
6 Based on the maximum daily effluent flow of 0.875 MGD.

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.c.viii 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. Treated municipal wastewater is discharge to Orchard Creek, tributary to Auburn Ravine, East Side Canal, Cross Canal, and the Sacramento River. Order No. R5-2005-0032 indicated that the discharge was to an unnamed tributary to Orchard Creek. However, the Discharger has stated that the discharge is directly to Orchard Creek, as shown on the map in Attachment B. Observation of the outfall during the permit site visit in April 2009 verified that the discharge is directly to Orchard Creek.

The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for Orchard Creek, but does identify present and potential uses for the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge, to which Orchard Creek, via Auburn Ravine, East Side

Canal, and Cross Canal, is tributary. Thus, beneficial uses applicable to Orchard Creek are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Orchard Creek	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation (AGR); 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).

In reviewing whether the existing and/or potential uses of the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge apply to Orchard Creek, the Regional Water Board has considered the following facts:

i. Municipal and Domestic Supply and Agricultural Irrigation

The Regional Water Board is required to apply the beneficial uses of municipal and domestic supply to Orchard Creek based on State Water Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Water Board Resolution 89-056. In addition, the State Water Board has issued water rights for irrigation uses (including stock watering) to existing users along downstream waters. Riparian rights, for landowners along streams and rivers, may not be recorded with the State Water Board, which may use the water for domestic and irrigation purposes. Since Orchard Creek is an ephemeral stream, Orchard Creek likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water and is also designated as agricultural supply. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in Orchard Creek, Auburn Ravine, East Side Canal, Cross Canal, and the Sacramento River.

ii. Water Contact and Non-Contact Recreation and Esthetic Enjoyment

The Facility discharges to Orchard Creek, Auburn Ravine, East Side Canal, Cross Canal, and the Sacramento River. The Regional Water Board finds that there is ready public access to Orchard Creek, Auburn Ravine, East Side Canal, Cross Canal, and the Sacramento River. Exclusion or restriction of public use is unrealistic

iii. Groundwater Recharge

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since Orchard Creek is at

times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply.

iv. Freshwater Replenishment

When water is present in Orchard Creek, there is hydraulic continuity between Orchard Creek, Auburn Ravine, East Side Canal, Cross Canal, and the Sacramento River. During periods of hydraulic continuity, Orchard Creek adds to the water quantity and may impact the quality of water flowing downstream in the Sacramento River.

v. Warm and Cold Freshwater Habitats, Warm and Cold Spawning Habitats, and Wildlife Habitat

Orchard Creek is tributary to Auburn Ravine, East Side Canal, Cross Canal, and the Sacramento River. The California Department of Fish and Game (DFG) has verified the presence of both salmon and steelhead (anadromous species) in Auburn Ravine, downstream of the discharge from the Facility. The Basin Plan (Table II-1) designates the Sacramento River, from the Colusa Basin Drain to the "I" Street Bridge, as being both a cold and warm freshwater habitat. The cold water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L. Pursuant to the Basin Plan tributary rule, the cold and warm water habitat designation is applied to Orchard Creek.

Upon review of the flow conditions, habitat values, and beneficial uses of the Orchard Creek, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River are applicable to Orchard Creek.

b. Effluent and Ambient Background Data. The RPA, as described in section IV.C.3 of this Fact Sheet, was based on data from January 2006 through December 2008, which includes effluent and ambient background data submitted in monthly SMRs and semi-annual priority pollutant monitoring.

c. Hardness-Dependent CTR Metals Criteria

The *California Toxics Rule* and the *National Toxics Rule* 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[1]

[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.

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 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.

i. Reasonable Potential Analysis

The SIP in Section 1.3 states, "*The RWQCB shall…determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.*" Section 1.3 provides a step-by-step procedure for conducting the RPA and is further described in Section IV.C.3.a of the Fact Sheet. The procedure requires the comparison of the maximum effluent concentration (MEC) and maximum receiving water background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(a) For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case downstream hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas in the receiving water affected by the discharge. Therefore, for this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii. below.

[1] 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.

(b) For comparing the maximum receiving water background concentration to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case upstream hardness was used to adjust the criterion. In this evaluation the area outside the influence of the discharge is analyzed. For this situation, the discharge does not impact the upstream hardness. Therefore, the effect of the effluent hardness was not included in this evaluation.

The upstream receiving water hardness in Orchard Creek ranged from 48 mg/L to 88 mg/L, based on six samples from January 2006 to December 2008. Thus, a minimum upstream receiving water hardness of 48 mg/L (as $CaCO_3$) represents the reasonable worst-case upstream hardness and was used to adjust the criterion when comparing the maximum receiving water background concentration to the criterion. For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case downstream hardness was used to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii. below.

ii. Effluent Concentration Allowance (ECA) Calculation

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 WQBELs.

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 constants

[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

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:

$$ECA = C \text{ (when } C \leq B)^{[1]} \text{ (Equation 2)}$$

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 12 mg/L to 49 mg/L (as $CaCO_3$), based on 43 samples from January 2006 to December 2008. The upstream receiving water hardness varied from 48 mg/L to 88 mg/L (as $CaCO_3$), based on six samples from January 2006 to December 2008. Using a hardness of 12 mg/L

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

(as $CaCO_3$) to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in the example using zinc 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., 48 mg/L as $CaCO_3$)
- Upstream receiving water zinc concentration always at the CTR criteria (i.e., no assimilative capacity). Based on available data, the receiving water never exceeded the CTR criteria for any metal with hardness-dependent criteria.

As demonstrated in Table F-5, using a hardness of 12 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. Therefore, in this Order the ECA for all Concave Down Metals has been calculated using Equation 1 with a hardness of 12 mg/L (as $CaCO_3$).

Table F-5. Zinc ECA Evaluation

Minimum Observed Effluent Hardness	**12 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**48 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Zinc Concentration	**64 µg/L[1]**
Zinc $ECA_{chronic}$[2]	**20 µg/L**

	Mixed Downstream Ambient Concentration		
Effluent Fraction	**Hardness[3] (mg/L) (as $CaCO_3$)**	**CTR Criteria[4] (µg/L)**	**Zinc[5] (µg/L)**
1%	48	64	64
5%	46	62	62
15%	43	58	58
25%	39	54	53
50%	30	43	42
75%	21	32	31
100%	12	20	20

1 Maximum assumed upstream receiving water zinc concentration calculated using Equation 1 for chronic criterion at a hardness of **48 mg/L (as $CaCO_3$)**.

2 ECA calculated using Equation 1 for zinc criterion at a hardness of **12 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 zinc concentration is the mixture of the receiving water and effluent zinc 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}.

$$ECA = \left(\frac{m(H_e - H_{rw})\left(e^{m\{\ln(H_{rw})\}+b}\right)}{H_{rw}} \right) + e^{m\{\ln(H_{rw})\}+b} \qquad \text{(Equation 3)}$$

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 ($H_{rw} > H_e$)[1]

A similar example as was done for the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-6, below. As previously mentioned, the minimum effluent hardness is 12 mg/L (as $CaCO_3$), while the upstream receiving water hardness ranged from 48 mg/L to 88 mg/L (as $CaCO_3$). In this case, the minimum effluent concentration is less than the range of observed upstream receiving water hardness concentrations. Thus, the ECA

[1] When the minimum effluent hardness falls within the range of observed receiving water hardness concentrations, Equation 3 is 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. The minimum of the two calculated ECAs represents the ECA that ensures any mixture of effluent and receiving water is in compliance with the CTR criteria.

was calculated (Equation 3) based on the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion) and the minimum effluent hardness.

Using Equation 3 to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in Table F-6, for lead. 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 or effluent 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.

Table F-6. Lead ECA Evaluation

Minimum Observed Effluent Hardness			**12 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness			**48 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Lead Concentration			**1.2 µg/L[1]**
Lead $ECA_{chronic}$[2]			**0.06 µg/L**
Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Lead[5] (µg/L)**
1%	48	1.2	1.2
5%	46	1.2	1.2
15%	43	1.1	1.1
25%	39	1.0	1.0
50%	30	0.69	0.65
75%	21	0.44	0.35
100%	12	0.21	0.06

1 Minimum assumed upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of **48 mg/L (as $CaCO_3$)**.

2 ECA calculated using Equation 3 for chronic 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 chronic criteria calculated using Equation 1 at the mixed hardness.

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

d. Water Effect Ratio (WER). The Discharger submitted a *Copper Water-Effect Ratio Study for Orchard Creek at the Thunder Valley WWTP Discharge Outfall* in November 2007. The Discharger's study followed USEPA's 2001 *Streamlined Water-Effect Ratio Procedure for Discharges of Copper* (EPA 822-R-01-005).

Following the streamlined procedure, two separate sets of samples were evaluated on 4 June 2007 and 11 July 2007 to assess ambient conditions and to calculate a freshwater copper WER using the primary test species, *Ceriodaphnia dubia*. Consistent with the streamlined procedure, the Discharger used the geometric mean of the two sample WERs to calculate final site-specific WERs for dissolved and total copper. Based on the results of the study, the Discharger concluded that a dissolved WER for copper of 24.9 and a total WER for copper of 24.5, based on effluent data to represent low-flow, zero-dilution discharge conditions, were applicable to the discharge to Orchard Creek. Based on review of the Discharger's study, the Regional Water Board concludes that the Discharger's proposed WERs are applicable to the discharge to Orchard Creek.

Effluent limitations for metals must be expressed as total recoverable concentrations. Therefore, the criteria for copper used for the RPA must be total recoverable criteria and the proposed total recoverable WER of 24.5 was used to calculate aquatic life criteria for copper. See section IV.C.3.b.i of the Fact Sheet (Attachment F) for a discussion of the RPA for copper.

e. Conversion Factors. The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, 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.

f. Assimilative Capacity/Mixing Zone

Based on available information and on the Discharger's application, Orchard Creek, absent the discharge, is an ephemeral stream. The ephemeral nature of Orchard Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged in concentrations that may cause harm to aquatic life. Both conditions may exist within a short time span, where Orchard Creek would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Sacramento River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect beneficial uses. Significant dilution may occur during and immediately following high rainfall events.

3. Determining the Need for WQBELs

a. The Regional Water Board conducted the RPA in accordance with section 1.3 of the SIP. 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

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

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 to evaluate reasonable potential for both CTR and non-CTR constituents, except for non-CTR constituents where the MCL is the applicable water quality objective and as otherwise described in sections IV.C.3.b and IV.C.3.c of this Fact Sheet. The RPA was based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.

b. Constituents with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; 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.

i. Copper

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life 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 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. Using the default conversion factors, reasonable worst-case measured hardness of the effluent, and site-specific WER of 24.5 as described in section VI.C.2.d of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 37 µg/L and 47 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 5.0 µg/L and 7.0 µg/L, respectively, as total recoverable.

(b) RPA Results. The maximum effluent concentration (MEC) for copper was 16 µg/L (as total recoverable). The maximum observed upstream receiving water concentration was 3.6 µg/L (as total recoverable). Therefore, copper in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

ii. Settleable Solids

(a) WQO. For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.*"

(b) RPA Results. Order No. R5-2005-0032 established an AMEL of 0.1 ml/L and an MDEL of 0.2 ml/L for settleable solids. Settleable solids were not detected in the effluent based on 465 sampling events. Therefore, the discharge of tertiary treated wastewater from the Facility does not have a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids and effluent limitations for settleable solids are not included in this Order.

c. 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, cadmium, chlorine residual, delta-BHC, electrical conductivity, endrin aldehyde, iron, lead, manganese, mercury, pathogens, pH, and zinc. 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. 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. The most stringent of these criteria, the chronic criterion of 87 ug/L, is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as $CaCO_3$). The upstream receiving water pH ranged from 6.41 to 8.2. The upstream receiving water hardness ranged from 48 mg/L to 88 mg/L. The effluent hardness, which represents the downstream hardness during critical low flow periods, ranged from 12 mg/L to 49 mg/L. The low pH values observed in the receiving water and the low hardness observed in the effluent is supportive of the applicability of the NAWQC chronic criteria for aluminum, according to USEPA's development document.

(b) RPA Results. The maximum effluent concentration (MEC) for aluminum was 71µg/L while the maximum observed upstream receiving water concentration was 550 µg/L. Because the upstream receiving water aluminum concentration exceeds the chronic criterion, and aluminum was detected in the effluent, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the chronic criterion.

(c) WQBELs. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for aluminum of 76 µg/L and 128 µg/L, respectively, based on the NAWQC for protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 71µg/L is less than the applicable WQBEL. 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 Orchard Creek has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in Auburn Ravine downstream of the discharge is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.5, 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 8.5 was used to derive the acute criterion. The resulting acute criterion is 2.14 mg/L.

Since the receiving water is, at times, an effluent dominated waterbody, effluent temperature and pH data from the Discharger's monthly monitoring reports from January 2006 through December 2008 were used to develop the chronic criteria. Using effluent data, the 30-day CCC was calculated for each day when temperature and pH were measured. The resulting lowest 30-day CCC is 1.24 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 1.24 mg/L (as N), the 4-day average concentration that should not be exceeded is 2.33 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 currently uses 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 MEC for ammonia was 1.2 mg/L while the maximum observed upstream receiving water concentration was 0.21 mg/L. Because municipal wastewater contains ammonia and inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream, 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 AMEL and the MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and MDEL for ammonia as shown in Table F-8 of this Fact Sheet, based on the NAWQC for the protection of aquatic life.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that concentrations of ammonia are consistently less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. Cadmium

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for cadmium. Section 1.3 of the SIP contains requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that CTR criteria be adjusted for hardness, as applicable. Cadmium behaves as both a Concave Down parameter (i.e., for comparison with the chronic criterion) and as a Concave Up parameter (i.e., for comparison with the acute criterion). Therefore, the minimum observed effluent hardness was used to adjust the chronic CTR criterion when comparing the MEC to the chronic criterion. The maximum observed upstream receiving water hardness, no receiving water assimilative capacity for cadmium (i.e., ambient background cadmium concentration is at the CTR acute criterion), and the minimum effluent hardness were used to adjust the acute CTR criterion when comparing the MEC to the acute criterion. The minimum observed receiving water

hardness was used when comparing the maximum background receiving water cadmium concentration to the acute and chronic criteria. Using the default conversion factors and reasonable worst-case measured hardness of the effluent, the applicable chronic (4-day average) criterion for the effluent is 0.47 µg/L. Using the maximum observed upstream receiving water hardness, no receiving water assimilative capacity for cadmium (i.e., ambient background cadmium concentration is at the CTR chronic criterion) and the minimum effluent hardness, the applicable acute (1-hour average) criterion for the effluent is 0.10 µg/L. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 2.0 µg/L and 1.4 µg/L, respectively.

(b) RPA Results. The MEC for cadmium was 0.24 µg/L (as total recoverable), while cadmium was not detected in the receiving water. Because the MEC exceeds the acute criterion for the effluent of 0.10 µg/L, cadmium in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the acute CTR criterion for the protection of freshwater aquatic life.

(c) WQBELs. As described in section IV.C.2.c of the Fact Sheet, the $ECA_{chronic}$ was determined using the reasonable worst-case measured hardness of the effluent and the ECA_{acute} was determined assuming the maximum observed upstream receiving water hardness, no receiving water assimilative capacity for cadmium (i.e., ambient background cadmium concentration is at the CTR chronic criterion), and the minimum effluent hardness, which is protective under all discharge and mixing conditions. This results in an $ECA_{chronic}$ and ECA_{acute} for cadmium of 0.47 µg/L and 0.10 µg/L, respectively. Using the procedures for calculating WQBELs in section 1.4 of the SIP, this Order contains a final AMEL and MDEL for cadmium as shown in Table F-8 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 0.24 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for cadmium are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the cadmium effluent limitations is established in TSO No. R5-2010-0006 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

iv. Chlorine Residual

(a) WQO. USEPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 mg/L and 0.019 mg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective.

(b) RPA Results. The Discharger does not use chlorine for disinfection of the effluent; however, sodium hypochlorite is added into the backpulse flow during the period of the backpulse sequence to inhibit biogrowth in the membrane modules. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) WQBELs. The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 mg/L and 0.019 mg/L, respectively, based on USEPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that concentrations of chlorine residual are consistently less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. Iron

(a) WQO. The Secondary MCL – Consumer Acceptance Limit for iron is 300 µg/L, which is used to interpret the Basin Plan's chemical constituent objective for the protection of the MUN beneficial use and is implemented as an annual average.

(b) RPA Results. The MEC for iron was 390 µg/L while the maximum observed upstream receiving water concentration was 780 µg/L. The maximum annual average effluent concentration of iron was 220 µg/L and the maximum annual average receiving water concentration was 780 µg/L. Because background annual average iron concentrations exceed the secondary MCL, and iron was detected in the effluent, iron in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the secondary MCL.

(c) WQBELs. This Order contains an annual average effluent limitation for iron as shown in Table F-8 of this Fact Sheet, based on the Basin Plan's narrative chemical constituents objective for the protection of the MUN beneficial use.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the maximum annual average effluent concentration of 220 µg/L is less than the applicable annual average WQBEL. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vi. Lead

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. Section 1.3 of the SIP contains requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that CTR criteria be adjusted for hardness, as applicable. In this case, the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background cadmium concentration is at the CTR chronic criterion), and the minimum effluent hardness were used to adjust the CTR criterion when comparing the MEC to the criteria and the minimum observed receiving water hardness was used when comparing the maximum background receiving water lead concentrations to the criteria. Using the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background cadmium concentration is at the CTR chronic criterion) and the minimum effluent hardness, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 1.5 µg/L and 0.06 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 32 µg/L and 1.2 µg/L, respectively.

(b) RPA Results. The MEC for lead was 1.1 µg/L (as total recoverable). The maximum observed upstream receiving water concentration was 0.94 µg/L (as total recoverable). Because the MEC exceeds the chronic criterion for the effluent of 0.06 µg/L, lead in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the chronic CTR criterion for the protection of freshwater aquatic life.

(c) WQBELs. As described in section IV.C.2.c of the Fact Sheet, the ECA_{acute} and $ECA_{chronic}$ were determined assuming the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion), and the minimum effluent hardness, which is protective under all discharge and mixing conditions. This results in an ECA_{acute} for lead of 1.5 µg/L and an $ECA_{chronic}$ of 0.06 µg/L. Using the

procedures for calculating WQBELs in section 1.4 of the SIP, this Order contains a final AMEL and MDEL for lead as shown in Table F-8 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 1.1 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for lead are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the lead effluent limitations is established in TSO No. R5-2010-0006 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

vii. Manganese

(a) WQO. The Secondary MCL – Consumer Acceptance Limit for manganese is 50 µg/L, which is used to interpret the Basin Plan's chemical constituent objective for the protection of the MUN beneficial use and is implemented as an annual average.

(b) RPA Results. The MEC for manganese was 5.6 µg/L while the maximum observed upstream receiving water concentration was 83 µg/L. The maximum annual average effluent concentration of manganese was 10 µg/L and the maximum annual average receiving water concentration was 83 µg/L. Because background annual average manganese concentrations exceed the secondary MCL, and manganese was detected in the effluent, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the secondary MCL.

(c) WQBELs. This Order contains an annual average effluent limitation for manganese as shown in Table F-8 of this Fact Sheet, based on the Basin Plan's narrative chemical constituents objective for the protection of the MUN beneficial use.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the maximum annual average effluent concentration of 10 µg/L is less than the applicable annual average WQBEL. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

viii. 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 0.0022 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. Discharges of mercury to surface waters in the Central Valley draining to the Sacramento San Joaquin Delta are being limited in order to protect the beneficial uses of the Delta.

(c) WQBELs. This Order contains a performance-based mass effluent limitation of 0.00020 lbs/month for mercury for the effluent discharged to the receiving water, based on the regulated flow of 0.35 MGD. The intention of the mass limitation is to maintain the mercury loading at the current level until a TMDL can be established and USEPA develops mercury standards that are protective of human health. The mass limitation was derived using the maximum observed effluent mercury concentration and the current regulated flow (0.35 MGD):

Effluent concentration (mg/L) * 3.5 MGD * 8.34 (conversion factor) * [365 days / 12 months] = lbs/month

If USEPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(d) Plant Performance and Attainability. The effluent limitations for mercury are based on treatment plant performance. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ix. Pathogens

The Regional Water Board, when developing NPDES permits, implements recommendations by the California Department of Public Health (DPH; formerly the Department of Health Services) for the appropriate disinfection requirements for the protection of MUN, REC-1 and AGR. The disinfection

requirements in this Order implement the DPH recommendations and are fully protective of the beneficial uses of the receiving water.

(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. The measure of coliform organisms is utilized as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

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 DPH'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.

Total coliform organisms are an indicator of the level of pathogens in the effluent. Therefore, effluent limitations for total coliform organisms are necessary to control the discharge of pathogens, and have been included in this Order. In site-specific situations where a discharge is occurring to a stream with a downstream water intake used as a domestic water supply without treatment, the DPH has recommended the same Title 22 tertiary treatment requirements for the protection of MUN, as well as protecting REC-1 and AGR. DPH has also recommended a 20:1 dilution ratio in addition to the Title 22 tertiary treatment requirement where there are existing domestic water users of raw water near the treatment plant outfall. In this case, there are no such known uses that could be affected by the discharge, so tertiary treatment plus 20:1 dilution is not necessary to protect the MUN, REC-1 or AGR uses.

The chemical constituents narrative objective in the Basin Plan states, "*Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.*" 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." When necessary, the Regional Water Board adopts numeric effluent limitations to implement these objectives on a case-by-case basis implementing relevant numerical criteria and guidelines developed and/or published by other agencies and organizations (e.g., State Water Board, DPH, California Office of Environmental Health Hazard Assessment, California Department of Toxic Substances Control, University of California Cooperative Extension, California Department of Fish and Game, USEPA, U.S. Food and Drug Administration, National Academy of Sciences, U.S. Fish and Wildlife Service, Food and Agricultural Organization of the United Nations). In considering such criteria, the Regional Water Board evaluates whether the specific numerical criteria, which are available through these sources and through other information supplied to the Regional Water Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective.

For public water supplies, state and federal law require residual chlorine and/or ultraviolet disinfection of surface water. (*See, e.g.,* Surface Water Treatment Rule, 40 C.F.R. Part 141, Subpart H; Cal. Code of Regs. Title 22, section 64447.) Treating pathogens to a level more stringent than tertiary treatment requires a chlorine residual in the effluent that is toxic to aquatic life in the receiving water. Pathogens are not bio-accumulative, so discharges at the permitted levels in this Order do not threaten potential uses of the receiving water for untreated domestic use. Therefore, the requirement to implement tertiary treatment only when 20:1 dilution is not available adequately protects beneficial uses and is appropriate for this discharge under the case-by-case approach.

(b) RPA Results. The beneficial uses of Orchard Creek include MUN, REC-1, and AGR, 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 testing, an operational specification for turbidity has been included to monitor the effectiveness of treatment filter performance, and to immediately signal the Discharger to implement operational procedures to correct deficiencies in filter performance. Higher effluent turbidity measurements do not necessarily indicate that the effluent discharge exceeds the water quality criteria/objectives for pathogens (i.e., bacteria, parasites, and viruses), which are the principal infectious agents

that may be present in raw sewage. Since turbidity is not a valid indicator parameter for pathogens, the turbidity limitations in Order No. R5-2005-0032 are not imposed to protect the receiving water from excess turbidity. The former turbidity limitations were not technology-based effluent limitations or WQBELs for either pathogens or turbidity. Water quality-based turbidity limitations are not required because the effluent does not have a reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for turbidity.

The tertiary treatment process, or equivalent, with membrane filtration is capable of reliably treating wastewater to a turbidity level of 0.2 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. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 0.2 NTU as a daily average; 0.5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 1 NTU as an instantaneous maximum.

This Order contains effluent limitations for total coliform organisms and requires 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. The Discharger currently provides tertiary treatment which is capable of achieving Title 22 requirements for pathogens. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

x. Persistent Chlorinated Hydrocarbon Pesticides

(a) WQO. The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Persistent chlorinated hydrocarbon pesticides include aldrin; alpha-BHC; beta-BHC; gamma-BHC; delta-BHC; chlordane; 4,4-DDT; 4,4-DDE; 4,4-DDD; dieldrin; alpha-endosulfan; beta-endosulfan; endosulfan sulfate; endrin; endrin aldehyde; heptachlor; heptachlor epoxide; and toxaphene.

(b) RPA Results. Delta-BHC was detected in the effluent once at a concentration of 0.066 µg/L. Endrin aldehyde was detected in the effluent twice at concentrations of 0.077 µg/L and 0.18 µg/L. The detection of delta-BHC and endrin aldehyde in the effluent presents a reasonable potential to exceed the Basin Plan objectives for persistent chlorinated hydrocarbon pesticides.

(c) WQBELs. Effluent limitations for delta-BHC and endrin aldehyde are included in this Order and are based on the Basin Plan objective of no detectable concentrations of persistent chlorinated hydrocarbon pesticides. The remaining persistent chlorinated hydrocarbon pesticides did not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives and effluent limitations for those parameters are not included in this Order.

(d) Plant Performance and Attainability. Delta-BHC was detected once in May 2006, based on 44 samples collected between January 2006 and December 2008. Delta-BHC has not been detected in any samples since May 2006. Endrin aldehyde was detected twice in May and December 2006, based on 44 samples collected between January 2006 and December 2008. Endrin aldehyde has not been detected in any samples since December 2006. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

xi. pH

(a) WQO. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"...pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses."*

(b) RPA Results. The discharge of municipal wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan's numeric objectives for pH.

(c) WQBELs. Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.

(d) Plant Performance and Attainability. The effluent pH was below the instantaneous minimum only twice in 1,093 samples and was not recorded above the instantaneous maximum of 8.5. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

xii. Salinity

(a) WQO. There are no USEPA water quality criteria for the protection of aquatic organisms for electrical conductivity (EC), total dissolved solids (TDS), sulfate, and chloride. The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride.

Table F-7. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	444	3500
TDS (mg/L)	Varies	500, 1000, 1500	252	560
Sulfate (mg/L)	Varies	250, 500, 600	54	59
Chloride (mg/L)	Varies	250, 500, 600	16	27

1 Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)

2 The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 umhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

3 The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

(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 recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

(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 agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently

grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

(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. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

(b) RPA Results.

(1) **Chloride.** Chloride concentrations in the effluent ranged from 46 mg/L to 59 mg/L, with an average of 54 mg/L. These levels do not exceed the agricultural water goal. Background concentrations in Orchard Creek ranged from 5.2 mg/L to 10 mg/L, with an average of 7.8 mg/L, for six samples collected by the Discharger from January 2006 through December 2008.

(2) **Electrical Conductivity.** A review of the Discharger's monitoring reports shows an average effluent EC of 444 µmhos/cm, with a range from 250 µmhos/cm to 3,500 µmhos/cm. These levels exceed the agricultural water goal. The background receiving water EC averaged 189 µmhos/cm.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 13 mg/L to 27 mg/L, with an average of 16 mg/L. These levels do not exceed the secondary MCL. Background concentrations in Orchard Creek ranged from 3.1 mg/L to 9.9 mg/L, with an average of 6.3 mg/L.

(4) Total Dissolved Solids. The average TDS effluent concentration was 252 mg/L with concentrations ranging from 200 mg/L to 560 mg/L. These levels exceed the applicable water quality objectives. The background receiving water TDS ranged from 81 mg/L to 120 mg/L, with an average of 103 mg/L.

(c) WQBELs. Effluent limitations based on the MCL or the Basin Plan would likely require construction and operation of a reverse osmosis treatment plant. The State Water Board, in Water Quality Order 2005-005 (for the City of Manteca), states, "*...the State Board takes official notice [pursuant to Title 23 of California Code of Regulations, 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 State Water Board states in that Order, "*Although the ultimate solution to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta.*" The State Water Board goes on to say, "*Construction and operation of reverse osmosis facilities to treat discharges...prior to implementation of other measures to reduce the salt load in the southern Delta, would not be a reasonable approach.*"

The Regional Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. In a statement issued at the 16 March 2006, Regional Water Board meeting, Board Member Dr. Karl Longley recommended that the Regional Water Board continue to exercise its authority to regulate discharges of salt to minimize salinity increases within the Central Valley. Dr. Longley stated, "*The process of developing new salinity control policies does not, therefore, mean that we should stop regulating salt discharges until a salinity Policy is developed. In the meantime, the Board should consider all possible interim approaches to continue controlling and regulating salts in a reasonable manner, and encourage all stakeholder groups that may be affected by the Regional Board's policy to actively participate in policy development.*"

Order No. R5-2005-0032 established an AMEL for electrical conductivity of 700 µmhos/cm based on the agricultural water goal. Based on the exceedances of the agricultural water goal during the term of Order No. R5-2005-0032, this Order retains the effluent limitation for electrical conductivity. Electrical conductivity is an indicator parameter for salinity, including chloride, sulfate, and TDS. Establishing effluent limitations for electrical conductivity is expected to effectively limit the constituents that contribute to salinity. Therefore, effluent limitations for chloride, sulfate,

and TDS are not included in this Order. This Order also requires the Discharger to develop a salinity evaluation and minimization plan to address sources of salinity from the domestic wastewater treatment system.

(d) Plant Performance and Attainability. Effluent concentrations of electrical conductivity exceeded the applicable WQBEL on seven occasions out of 492 sampling events, or 1.4 percent of the time. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

xiii. Zinc

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Section 1.3 of the SIP contains requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that CTR criteria be adjusted for hardness, as applicable. In this case, the minimum observed effluent hardness was used to adjust the CTR criteria for zinc 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. Using the default conversion factors and reasonable worst-case measured hardness of the effluent, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are both 20 µg/L, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are both 64 µg/L, as total recoverable.

(b) RPA Results. The MEC for zinc was 89 µg/L (as total recoverable). The maximum observed upstream receiving water concentration was 7.4 µg/L (as total recoverable). Because the MEC exceeds the acute and chronic criteria for the effluent of 20 µg/L, zinc in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) WQBELs. As described in section IV.C.2.c of the Fact Sheet, the ECA_{acute} and $ECA_{chronic}$ were determined using the minimum observed effluent hardness, which is protective under all discharge and mixing conditions. This results in an ECA_{acute} and an $ECA_{chronic}$ for zinc of 20 µg/L. This Order contains a final AMEL and MDEL for zinc as shown in Table F-8 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 89 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent

limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for zinc are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the zinc effluent limitations is established in TSO No. R5-2010-0006 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

4. WQBEL Calculations

a. This Order includes WQBELs for aluminum, ammonia, chlorine residual, delta-BHC, electrical conductivity, endrin aldehyde, iron, lead, manganese, mercury, pathogens, pH, and zinc. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H 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., LTA_{acute} and $LTA_{chronic}$) 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.

$$AMEL = mult_{AMEL}[\min(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic})]$$

$$MDEL = mult_{MDEL}[\min(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}})]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where:
$mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
MA = statistical multiplier converting acute ECA to LTA_{acute}
MC = statistical multiplier converting chronic ECA to $LTA_{chronic}$

See Section IV.D of this Fact Sheet for a summary of WQBELs contained in this Order.

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 toxicity and chronic toxicity. The Order also 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%

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.) The following table summarizes test results exceeding 1 chronic toxicity unit (TUc) based on quarterly whole effluent chronic toxicity testing performed by the Discharger from January 2006 through December 2008.

Table F-7. Summary of Chronic Aquatic Toxicity Results

Date	Species	Test Endpoint	Result (TUc)
10 May 2006	*Pimephales promelas*	Growth	>1
10 May 2006	*Selenastrum capricornutum*	Growth	>1
3 May 2007	*Ceriodaphnia dubia*	Reproduction	>1
1 August 2007	*Ceriodaphnia dubia*	Reproduction	>1
16 October 2007	*Ceriodaphnia dubia*	Reproduction	4
14 February 2008	*Selenastrum capricornutum*	Growth	>1
30 April 2008	*Selenastrum capricornutum*	Growth	>1
30 July 2008	*Ceriodaphnia dubia*	Reproduction	>1

Based on chronic WET testing performed by the Discharger from January 2006 through December 2008, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

No dilution has been granted in this Order for the chronic condition. Chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates that the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, this Order includes a narrative chronic toxicity effluent limitation.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic

[1] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-