

health from carcinogenic effects shall use the ambient background concentration as an arithmetic mean. For ECAs based on MCLs implementing the Basin Plan chemical constituents objective that are applied as annual averages, an arithmetic mean was also used for B due to the long-term basis of the criterion.

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$\begin{aligned}
 & \text{LTA}_{\text{acute}} \\
 AMEL &= mult_{AMEL} \left[ \min(M_A ECA_{\text{acute}}, M_C ECA_{\text{chronic}}) \right] \\
 MDEL &= mult_{MDEL} \left[ \min(M_A ECA_{\text{acute}}, M_C ECA_{\text{chronic}}) \right] \\
 & \text{LTA}_{\text{chronic}} \\
 MDEL_{HH} &= \left( \frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}
 \end{aligned}$$

where:  $mult_{AMEL}$  = statistical multiplier converting minimum LTA to AMEL  
 $mult_{MDEL}$  = statistical multiplier converting minimum LTA to MDEL  
 $M_A$  = statistical multiplier converting CMC to LTA  
 $M_C$  = statistical multiplier converting CCC to LTA

Water quality-based effluent limitations were calculated for aluminum, ammonia, chlorodibromomethane, copper, cyanide, diazinon, dichlorobromomethane, diethyl phthalate, iron, lead, methylene blue active substances, nitrite, tetrachloroethylene, thallium, and zinc as follows in Tables F-9 through F-23, below.

**Table F-9. WQBEL Calculations for Aluminum**

	Acute	Chronic	Human Health
Criteria (µg/L) <sup>(1)</sup>	750	750	200
Background Concentration (µg/L)	1,300	1,300	1,300
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA (µg/L)	750	750	200
ECA Multiplier	0.41	0.62	--
LTA (µg/L)	310	465	--
AMEL Multiplier (95 <sup>th</sup> %)	1.4	<sup>(2)</sup>	--
<b>AMEL (µg/L)</b>	<b>432</b>	<sup>(2)</sup>	--
MDEL Multiplier (99 <sup>th</sup> %)	2.4	<sup>(2)</sup>	--
<b>MDEL (µg/L)</b>	<b>750</b>	<sup>(2)</sup>	--

<sup>(1)</sup> USEPA Ambient Water Quality Criteria for acute and chronic. California Secondary MCL for human health.  
<sup>(2)</sup> Limitations based on acute LTA (Chronic LTA > Acute LTA).

**Table F-10. WQBEL Calculations for Ammonia Using Dynamic Modeling**

ECA (mg/L)	(1)
ECA Multiplier	(1)
LTA (mg/L)	(1)
AMEL Multiplier (95 <sup>th</sup> %)	(1)
MEC (mg/L)	53
<b>AMEL (mg/L)</b>	<b>31</b>
MDEL Multiplier (99 <sup>th</sup> %)	(1)
<b>MDEL (mg/L)</b>	<b>60</b>

(1) Because the effluent ammonia concentrations are not log-normally distributed, the WQBEL equations in the SIP cannot be used to derive effluent limits. However, the methodology used in WQBEL calculation in the SIP does apply, namely the 99<sup>th</sup> percentile of the single sample concentration distribution is the MDEL and the 95<sup>th</sup> percentile of the monthly averaged concentrations is the AMEL.

**Table F-11. WQBEL Calculations for Chlorodibromomethane**

	Human Health
Criteria (µg/L)	0.41
Background Concentration (µg/L)	0.07 (1)
Dilution Credit	221:1
ECA (µg/L)	76
<b>AMEL (µg/L)</b>	<b>76</b>
MDEL Multiplier (99 <sup>th</sup> %)	2.19
<b>MDEL (µg/L)</b>	<b>166</b>

(1) All receiving water concentrations were reported as non-detect. This value represents the lowest reported MDL.

**Table F-12. WQBEL Calculations for Copper Using Dynamic Modeling**

LTA (µg/L)	36.4
AMEL Multiplier (95 <sup>th</sup> %)	1.370
<b>AMEL (µg/L)</b>	<b>50</b>
MDEL Multiplier (99 <sup>th</sup> %)	2.325
<b>MDEL (µg/L)</b>	<b>85</b>

**Table F-13. WQBEL Calculations for Cyanide**

	Acute	Chronic	Human Health
Criteria (µg/L)	22	5.2	150
Background Concentration (µg/L)	3.2	3.2	3.2
Dilution Credit	11:1	12:1	221:1
ECA (µg/L)	229	29	32,593
ECA Multiplier	0.32	0.53	--
LTA (µg/L)	74	15	--
AMEL Multiplier (95 <sup>th</sup> %)	(1)	1.55	--
<b>AMEL (µg/L)</b>	(1)	<b>24</b>	<b>32,593</b>
MDEL Multiplier (99 <sup>th</sup> %)	(1)	3.11	2.01
<b>MDEL (µg/L)</b>	(1)	<b>48</b>	<b>65,387</b>

(1) Limitations based on chronic LTA (Chronic LTA < Acute LTA).

**Table F-14. WQBEL Calculations for Diazinon**

	Acute	Chronic
Criteria (µg/L)	0.16	0.10
Background Concentration (µg/L)	0.04 <sup>(1)</sup>	0.04 <sup>(1)</sup>
Dilution Credit	No Dilution	No Dilution
ECA (µg/L)	0.16	0.10
ECA Multiplier	0.321	0.527
LTA (µg/L)	0.051	0.053
AMEL Multiplier (95 <sup>th</sup> %)	1.55	<sup>(2)</sup>
<b>AMEL (µg/L)</b>	<b>0.08</b>	<sup>(2)</sup>
MDEL Multiplier (99 <sup>th</sup> %)	3.11	<sup>(2)</sup>
<b>MDEL (µg/L)</b>	<b>0.16</b>	<sup>(2)</sup>

<sup>(1)</sup> All receiving water concentrations were reported as non-detect. This value represents the lowest reported MDL.

<sup>(2)</sup> Limitations based on acute LTA (Acute LTA < Chronic LTA).

**Table F-15. WQBEL Calculations for Dichlorobromomethane**

	Human Health
Criteria (µg/L)	0.56
Background Concentration (µg/L)	0.06 <sup>(1)</sup>
Dilution Credit	221:1
ECA (µg/L)	111
<b>AMEL (µg/L)</b>	<b>111</b>
MDEL Multiplier (99 <sup>th</sup> %)	2.52
<b>MDEL (µg/L)</b>	<b>280</b>

<sup>(1)</sup> All receiving water concentrations were reported as non-detect. This value represents the lowest reported MDL.

**Table F-16. WQBEL Calculations for Diethyl Phthalate**

	Acute	Chronic	Human Health
Criteria (µg/L) <sup>(1)</sup>	940	3	23,000
Background Concentration (µg/L)	2.2	2.2	2.2
Dilution Credit	11:1	12:1	221:1
ECA (µg/L)	11,256	13	5,105,514
ECA Multiplier	0.32	0.53	--
LTA (µg/L)	3614	6.65	--
AMEL Multiplier (95 <sup>th</sup> %)	<sup>(2)</sup>	1.55	--
<b>AMEL (µg/L)</b>	<sup>(2)</sup>	<b>10</b>	<b>5,105,514</b>
MDEL Multiplier (99 <sup>th</sup> %)	<sup>(2)</sup>	3.11	2.01
<b>MDEL (µg/L)</b>	<sup>(2)</sup>	<b>21</b>	<b>10,242,626</b>

<sup>(1)</sup> USEPA Ambient Water Quality Criteria.

<sup>(2)</sup> Limitations based on chronic LTA (Chronic LTA < Acute LTA).

**Table F-17. WQBEL Calculations for Iron**

	Human Health
Criteria (µg/L) <sup>(1)</sup>	300
Background Concentration (µg/L)	873 <sup>(2)</sup>
Dilution Credit	No Dilution
ECA (µg/L)	300
<b>Annual Average Effluent Limitation (µg/L)</b>	<b>300</b>

<sup>(1)</sup> Based on California Secondary Maximum Contaminant Level.

<sup>(2)</sup> This value represents the average receiving water concentration.

**Table F-18. WQBEL Calculations for Lead Using Dynamic Modeling**

LTA (µg/L)	10.6
AMEL Multiplier (95 <sup>th</sup> %)	1.622
<b>AMEL (µg/L)</b>	<b>17</b>
MDEL Multiplier (99 <sup>th</sup> %)	3.426
<b>MDEL (µg/L)</b>	<b>36</b>

**Table F-19. WQBEL Calculations for MBAS**

	Human Health
Criteria (µg/L) <sup>(1)</sup>	500
Background Concentration (µg/L)	49 <sup>(2)</sup>
Dilution Credit	221:1
ECA (µg/L)	100,231
<b>Annual Average Effluent Limitation (µg/L)</b>	<b>100,231</b>

<sup>(1)</sup> Based on California Secondary Maximum Contaminant Level.

<sup>(2)</sup> This value represents the average receiving water concentration.

**Table F-20. WQBEL Calculations for Nitrite**

	Human Health
Criteria (µg/L) <sup>(1)</sup>	1,000
Background Concentration (µg/L)	3 <sup>(2)</sup>
Dilution Credit	221:1
ECA(µg/L)	221,337
<b>AMEL (µg/L)</b>	<b>221,337</b>

<sup>(1)</sup> Based on California Primary Maximum Contaminant Level.

<sup>(2)</sup> All receiving water concentrations were reported as non-detect. This value represents the lowest reported MDL.

**Table F-21. WQBEL Calculations for Tetrachloroethylene**

	Chronic	Human Health
Criteria (µg/L)	840	0.8
Background Concentration (µg/L)	0.06 <sup>(1)</sup>	0.06 <sup>(1)</sup>
Dilution Credit	12:1	221:1
ECA (µg/L)	10,919	164
ECA Multiplier	0.19	--
LTA (µg/L)	2,023	--
AMEL Multiplier (95 <sup>th</sup> %)	2.93	--
<b>AMEL (µg/L)</b>	<b>5,922</b>	<b>164</b>
MDEL Multiplier (99 <sup>th</sup> %)	9.17	3.13
<b>MDEL (µg/L)</b>	<b>18,540</b>	<b>514</b>

<sup>(1)</sup> All receiving water concentrations were reported as non-detect. This value represents the lowest reported MDL.

**Table F-22. WQBEL Calculations for Thallium**

	Acute	Chronic	Human Health
Criteria (µg/L)	1,400	40	1.7
Background Concentration (µg/L)	2.2	2.2	2.2
Dilution Credit	11:1	12:1	No Dilution
ECA (µg/L)	16,776	494	1.7
ECA Multiplier	0.32	0.53	--
LTA (µg/L)	5,386	260.34	--
AMEL Multiplier (95 <sup>th</sup> %)	<sup>(1)</sup>	1.55	--
<b>AMEL (µg/L)</b>	<sup>(1)</sup>	<b>404</b>	<b>1.7</b>
MDEL Multiplier (99 <sup>th</sup> %)	<sup>(1)</sup>	3.11	2.01
<b>MDEL (µg/L)</b>	<sup>(1)</sup>	<b>811</b>	<b>3.4</b>

<sup>(1)</sup> Limitations based on chronic LTA (Chronic LTA < Acute LTA).

**Table F-23. WQBEL Calculations for Zinc Using Dynamic Modeling**

LTA (µg/L)	526
AMEL Multiplier (95 <sup>th</sup> %)	1.257
<b>AMEL (µg/L)</b>	<b>661</b>
MDEL Multiplier (99 <sup>th</sup> %)	1.870
<b>MDEL (µg/L)</b>	<b>984</b>

**Summary of Water Quality-based Effluent Limitations  
Discharge Point Nos. 001 and 002**

**Table F-24. Summary of Water Quality-based Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum, Total Recoverable	µg/L	432	200 <sup>(1)</sup>	750	--	--
Ammonia Nitrogen, Total (as N)	mg/L	31	--	60	--	--
Chlorine, Total Residual	mg/L	0.01 <sup>(2)</sup>	--	0.02 <sup>(3)</sup>	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorodibromomethane	µg/L	76	--	166	--	--
Copper, Total Recoverable	µg/L	50	--	85	--	--
Cyanide, Total (as CN)	µg/L	24	--	48	--	--
Diazinon	µg/L	0.08	--	0.16	--	--
Dichlorobromomethane	µg/L	111	--	280	--	--
Diethyl Phthalate <sup>(4)</sup>	µg/L	10	--	21	--	--
Iron, Total Recoverable	µg/L	300 <sup>(1)</sup>	--	--	--	--
Lead, Total Recoverable	µg/L	17	--	36	--	--
Manganese, Total Recoverable	µg/L	200 <sup>(1)</sup>	--	--	--	--
Mercury, Total Recoverable	lbs/year	0.672 <sup>(5)</sup>	--	--	--	--
Methylene Blue Active Substances (MBAS)	mg/L	100	--	--	--	--
Molybdenum, Total Recoverable	µg/L	32	--	--	--	--
Nitrite Nitrogen, Total (as N)	mg/L	221	--	--	--	--
Persistent Chlorinated Hydrocarbon Pesticides	µg/L	--	--	--	--	ND <sup>(6)</sup>
pH	standard units	--	--	--	6.5	8.5
Settleable Solids	mL/L/hr	0.1	--	0.2	--	--
Tetrachloroethylene	µg/L	164	--	514	--	--
Thallium, Total Recoverable	µg/L	1.7	--	3.4	--	--
Total Coliform	MPN/100 mL	240 <sup>(7)</sup>	23 <sup>(8)</sup>	--	--	--
Zinc, Total Recoverable	µg/L	661	--	984	--	--
Acute Toxicity <sup>(9)</sup>	%	--	--	--	--	--

- (1) Applied as an annual average effluent limitation based on the calendar year.
- (2) Applied as a 4-day average effluent limitation. Not applicable to Discharge Point No. 002.
- (3) Applied as a 1-hour average effluent limitation. Not applicable to Discharge Point No. 002.
- (4) Final WQBELs for diethyl phthalate of 14 µg/L as an AMEL and 27 µg/L as a MDEL will become effective subsequent to State Water Board approval of the LYRA.
- (5) Applied as a total pounds/year.
- (6) The non-detectable (ND) limitation applies to each individual pesticide. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use USEPA standard analytical techniques with a maximum acceptable detection level of 0.05 µg/L. Persistent chlorinated hydrocarbon pesticides include aldrin, dieldrin, chlordane, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha-BHC, beta-BHC, delta-BHC, and gamma-BHC or lindane), endosulfan (alpha and beta), endosulfan sulfate, toxaphene, 4,4'DDD, 4,4'DDE, and 4,4'DDT.
- (7) 240 MPN/100 mL not to be exceeded more than once in any 30-day period.
- (8) Applied as a 7-day median.
- (9) Survival of aquatic organisms in pH buffered 96-hour bioassays of undiluted waste shall be no less than:
  - Minimum for any one bioassay -----70%
  - Median for three or more consecutive bioassays -----90%

## 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 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 III-8.00 (SAC/SJ) or III-6 (Tulare)). 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" (pgs14-15) 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 1TUc.*"

The previous Order required monthly monitoring for acute toxicity to determine compliance with the Basin Plan requirements for acute toxicity. Results from 25 samples taken by the Discharger from November 2003 through June 2006 indicate that all samples were reported in compliance with the effluent limitations. There was one sample reported as 0% survival (February 2005), however according to the Discharger's transmittal letter to the Regional Water Board, the toxicity was due to the fact that the sample was taken during discharge to the disposal ponds and dechlorination was not provided for the effluent. In accordance with Basin Plan requirements, and as previously required in Order No. R5-2004-0085, effluent limitations for acute toxicity have been carried over to this Order as follows:

**Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste and buffered for pH shall be no less than:

Minimum for any one bioassay ----- 70%  
Median for any three or more consecutive bioassays ----- 90%

- b. **Chronic Aquatic Toxicity.** Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from January 2004 through April 2006, the

discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. The results of several tests indicate impacts to survival, growth, and reproduction at dilutions of 100 percent and 50 percent effluent.

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<sup>5</sup> that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, *"In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR §122.44(k).

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

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<sup>5</sup> 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. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)



## D. Final Effluent Limitations

### 1. Mass-based Effluent Limitations

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

Mass-based effluent limitations were calculated for the technology-based effluent limitations (BOD<sub>5</sub> and TSS) based upon the permitted average dry weather flow allowed in Section IV.A.1.a. of the Limitations and Discharge Requirements. For those pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based, mass-based effluent limitations are not included in this Order.

### 2. Averaging Periods for Effluent Limitations

Title 40 CFR §122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, the USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. *“First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge’s potential for causing acute toxic effects would be missed.”* (TSD, pg. 96) This Order utilizes maximum daily effluent limitations in lieu of average weekly effluent limitations for aluminum, ammonia, chlorodibromomethane, copper, cyanide, diazinon, dichlorobromomethane, diethyl phthalate, lead, methylene blue active substances, molybdenum, nitrite, tetrachloroethylene, thallium, and zinc, as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. For iron and manganese, for which effluent limitations are based on secondary MCLs, effluent limitations were applied as annual averages in accordance with direction from the Department of Health recommendations. For chlorine residual, coliform, and pH, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in Attachment F, Section IV.C.3., above. For BOD<sub>5</sub> and TSS, the technology-based average weekly and average monthly discharge limitations implementing the secondary effluent limitations have been supplemented

with maximum daily effluent limits to monitor and ensure proper operation of the Facility.

### 3. Satisfaction of Anti-Backsliding Requirements

The concentration-based effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order for several parameters, including BOD<sub>5</sub>, TSS, settleable solids, total coliform organisms, and pH. As described further in Section IV.D.4 below, this Order allows an increase in the design flow from the Facility, which increases the mass-based effluent limitations for BOD<sub>5</sub> and TSS.

Order No. R5-2003-0085 also included effluent limitations for a number of pollutant parameters that were subject to the Discharger's petition and the State Water Board Order WQO 2004-0013, that vacated the affected effluent limitations. The following table provides a comparison of the parameters that were originally contained in Order No. R5-2003-0085, those that were vacated in accordance with Order WQO 2004-0013, and those parameters that will be regulated under this Order.

**Table F-25. Comparison of Parameters Regulated For Discharges from the City of Yuba City**

Parameter	WQBEL Included in Order No. R5-2003-0085	WQBEL Included in Order No. R5-2003-0085 But Vacated by State Water Board Order WQO 2004-0013	WQBEL Included in Order R5-2007-0134
Aluminum	Yes	Yes	Yes
Ammonia	Yes	Yes	Yes
Arsenic	Yes	Yes	No
Bis (2-Ethylhexyl) Phthalate	Yes	No	No
Cadmium	Yes	Yes	No
Chloroform	Yes	Yes	No
Copper	Yes	Yes	Yes
Cyanide	Yes	Yes	Yes
Diazinon	Yes	Yes	Yes
Dibromochloromethane	Yes	Yes	Yes
Dichlorobromomethane	Yes	Yes	Yes
cis-1,2-Dichloroethene	Yes	Yes	No
Diethyl Phthalate	No	No	Yes
Ethion	Yes	Yes	No
Iron	Yes	No	Yes
Lead	No	No	Yes
Manganese	Yes	No	Yes
Mercury	Yes	Yes	Yes
Methylene Blue Active Substances	Yes	Yes	Yes
Methyl Tert Butyl Ether	Yes	Yes	No
Molybdenum	Yes	No	Yes

Parameter	WQBEL Included in Order No. R5-2003-0085	WQBEL Included in Order No. R5-2003-0085 But Vacated by State Water Board Order WQO 2004-0013	WQBEL Included in Order R5-2007-0134
Nitrate + Nitrite	Yes	Yes	No
Nitrite	Yes	Yes	Yes
n-Nitrosodi-n-Propylene	Yes	No	No
Organochlorine Pesticides	Yes	Yes	Yes
Pentachlorophenol	Yes	Yes	No
TCDD-Equivalents	No	No	No
Tetrachloroethylene	Yes	Yes	Yes
Thallium	No	No	Yes
Thiobencarb	Yes	Yes	No
Trichloroethylene	Yes	Yes	No
2,4,6-Trichlorophenol	Yes	Yes	No
Zinc	Yes	Yes	Yes

As shown above, there are several parameters in Order No. R5-2003-0085 that were not applicable during the previous permit term due to the State Water Board remand. Based on new data and information provided by the Discharger during the previous permit term (e.g., dynamic model results), as well as direction provided in the State Water Board Order WQO 2004-0013 to address the technical issues in the Discharger's petition (e.g., mixing zones and dilution credit), this Order: 1) includes revised effluent limitations for some parameters that are less stringent than in Order No. R5-2003-0085 due primarily to the application of dilution credits as authorized under the SIP; 2) does not include effluent limitations for some parameters that do not show reasonable potential in accordance with the SIP; and 3) includes effluent limitations for some parameters that were not previously regulated under Order No. R5-2003-0085.

The Clean Water Act specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limit is justified based on exceptions to the antibacksliding provisions contained in Clean Water Act sections 402(o) or 303(d)(4) and federal regulations at 40 CFR 122.44(i). The previous permit contained effluent limits for numerous constituents. In response to a petition by the Discharger, the State Water Board remanded the permit to the Regional Board to reconsider effluent limits for many of these constituents. The effluent limits that were part of the remand did not become effective and are subject to an exception to the antibacksliding provisions. Where an effluent limit did not become effective, the antibacksliding provisions of the Clean Water Act do not apply. See Table F-24 in the Fact Sheet showing which effluent limits were remanded to the Regional Water Board. The State Water Board upheld effluent limits in the previous permit for bis (2-ethylhexyl) phthalate, iron, lead, manganese, molybdenum, n-nitrosodi-n-propylene, and electrical conductivity. The proposed revised permit contains effluent limits for each of these constituents,

except n-nitrosodi-n-propylene, and the effluent limits for these constituents are less stringent than the previous permit. This Order does not contain effluent limits for bis (2-ethylhexyl) phthalate.

- a. This proposed permit does not include an effluent limit for n-nitrosodi-n-propylene because new information, including new data and new information about available dilution, supports the conclusion that there is no reasonable potential for this constituent to cause or contribute to an excursion above a water quality standard. The deletion of the effluent limit for this constituent is justified based on Clean Water Act regulations 40 CFR section 122.44(d)(1)(2)(i)(B)(1), which allows for exceptions to anti-backsliding based on new information that was not available at the time of issuance of the previous permit that supports the deletion of the effluent limit.
- b. The effluent limitations for molybdenum are less stringent than Order No. R5-2003-0085 because new information, including new data and new information about dilution, supports revising the limit. The effluent limits may be relaxed based on 40 CFR 122.44(l)(i)(B)(1), which allows for exceptions to anti-backsliding based on new information that was not available at the time of issuance of the previous permit and which would have justified a less stringent limit. Clean Water Act section 303(d)(4) allows relaxation of water quality-based effluent limitations in waters that are in attainment of the standard as long as relaxation complies with the antidegradation policy. The proposed limits should only be as high as is justified under the state and federal antidegradation policies. This permit contains effluent limits that comply with the antidegradation policies and are based on performance, not just new information about dilution. This Order includes an AMEL of 32 µg/L for molybdenum. The new effluent limitation represents the upper end of the lognormal distribution of data over the last 3 years. The new limits will maintain the high quality of the Feather River.
- c. The proposed revised numeric effluent limitation for iron are the same as the previous permit, but the averaging period has been revised to be an annual average to be consistent with state regulations implementing secondary drinking water standards and the mass limitations have been deleted consistent with federal regulations. The revised limitation for iron is justified based on Clean Water Act section 303(d)(4), which allows relaxation of effluent limits in waters that are in attainment of the objective for the specific constituent as long as relaxation complies with the antidegradation policy. The available information demonstrates that the new limitation will maintain high quality of the waters of the Feather River.
- d. The proposed revised effluent limitations for manganese are less stringent than the previous permit because new information, including new data and new information about dilution supports revising the limit. The effluent limits may be relaxed based on 40 CFR 122.44(l)(i)(B)(1), which allows for exceptions to anti-backsliding based on new information that was not available at the time of issuance of the previous permit and which would have justified a less stringent

limit. The averaging period has also been revised to be an annual average to be consistent with state regulations implementing secondary drinking water standards and the mass limitations have been deleted consistent with federal regulations. Clean Water Act section 303(d)(4) allows relaxation of water quality-based effluent limitations in waters that are in attainment of the standard as long as relaxation complies with the antidegradation policy. The proposed limits should only be as high as is justified under the state and federal antidegradation policies. This permit contains effluent limits that comply with the antidegradation policies and are based on performance, not just new information about dilution. This Order includes an annual average effluent limitation of 200 µg/L for manganese. The new effluent limitation represents the 95<sup>th</sup> percentile of the effluent data over the past 3 years (186.68 µg/L) rounded up. The new limits will maintain the high quality of the Feather River.

- e. As described in Section IV.C.3.i, this Order does not include effluent limitations for bis (2-ethylhexyl) phthalate because new information indicates that the data may not be reliable due to contamination with plastic containers but is requiring dischargers to monitor for the presence of bis (2-ethylhexyl) phthalate using sampling and analytical methods that would minimize the potential for contamination. The Regional Water Board believes that the resulting data will provide more valid, reliable, and representative data to determine whether a reasonable potential exists for bis (2-ethylhexyl) phthalate. The previous permit contained an effluent limit for bis (2-ethylhexyl) phthalate, but the removal of the effluent limit is not subject to the anti-backsliding provisions of the Clean Water Act because the final effluent limit for this constituent did not become effective prior to this renewal and reissuance of this permit.
- f. The proposed revised effluent limitations for diazinon are less stringent than the Order No. R5-2007-0134 because new information, including revised TMDLs that supports revising the limit. The effluent limits may be relaxed based on 40 CFR 122.44(l)(i)(B)(1), which allows for exceptions to anti-backsliding based on new information that was not available at the time of issuance of the previous permit and which would have justified a less stringent limit. Clean Water Act section 303(d)(4) allows relaxation of water quality-based effluent limitations in waters that are in attainment of the standard as long as relaxation complies with the antidegradation policy. The Regional Water Board adopted a revised Basin Plan amendment on 3 May 2007 with reevaluated water quality objectives for diazinon. The Basin Plan amendment increased the water quality objective for diazinon from 0.08 µg/L to 0.16 µg/L as a 1-hour average and 0.05 µg/L to 0.10 µg/L as a 4-day average. The State Water Resources Control Board approved the amendment on 12 May 2008. The USEPA ratified the amendment on 11 August 2008. Therefore, this Order establishes the final MDEL and AMEL as 0.16 µg/L and 0.08 µg/L, respectively.
- g. The proposed revised effluent limitations for lead are less stringent than the Order No. R5-2007-0134 because new information, including new data and subsequent dynamic modeling data supports revising the limit. The effluent limits may be relaxed based on 40 CFR 122.44(l)(i)(B)(1), which allows for exceptions

to anti-backsliding based on new information that was not available at the time of issuance of the previous permit and which would have justified a less stringent limit. Clean Water Act section 303(d)(4) allows relaxation of water quality-based effluent limitations in waters that are in attainment of the standard as long as relaxation complies with the antidegradation policy. Prior effluent limitations were calculated by assuming a "normal" distribution of data. Subsequent analysis of new effluent water quality data has shown that the effluent data actually follows a log-normal distribution; therefore, 40 CFR 122.44 (l)(i)(B)(2) allows relaxation of effluent limitations where (1) there is new dynamic modeling information available indicating that there is greater site-specific capacity in the receiving water and (2) new effluent water quality data allowing for a performance based limitation that is more stringent than the site-specific WQBEL based on the new dynamic model information. Therefore, anti-backsliding is allowed base on new information.

The proposed limits should only be as high as is justified under the state and federal antidegradation policies. A performance-based limit was calculated using the 99.9<sup>th</sup> percentile, which produced a upper limit of 2.86 µg/L, which is less than the MEC for lead. Therefore, this Order establishes the MEC of 3.3 µg/L as the final MDEL, which is less than the dynamic model based limitation of 36 µg/L but greater than the 1.23 µg/L MDEL established by Order No. R5-2007-0134.

- h. This Order includes limitations for EC that are less stringent than the previous permit. The previous permit stated: "*The 30-day 90<sup>th</sup> percentile effluent electrical conductivity shall not exceed 830 µmhos/cm.*" This Order contains a final average monthly effluent limitation of 1000 µmhos/cm. This Order also states: "*The Basin Plan includes a water quality objective that electrical conductivity (at 25°C) [s]hall not exceed 150 micromhos/cm (90 percentile) in well-mixed waters of the Feather River. The Basin Plan objective for EC is applied as a 10-year rolling average.*" This Order contains a receiving water limit that implements the water quality objective.

The federal regulations at 40 CFR section 122.44(l)(2)(i)(B)(1) allow a relaxation of an effluent limit where new information that was not available at the time of permit issuance justifies a less stringent limit. New data is available with respect to EC and the discharger's performance that would justify a less stringent limit. The highest calculated 30-day 90<sup>th</sup> percentile of the discharge from 1 July 2003 – 30 June 2006 was 949 µmhos/cm. The highest reported daily discharge from 1 July 2003 – 30 June 2006 was 1,000 µmhos/cm. Revising the monthly effluent limit from 830 µmhos/cm (30-day 90<sup>th</sup> percentile) to 1000 µmhos/cm is justified based on 40 CFR section 122.44(l)(2)(i)(B)(1).

Clean Water Act section 303(d)(4) also allows relaxation of effluent limits where the receiving water is in attainment with the standard and as long as the revised limit is in compliance with the antidegradation policy. In this case, the receiving water limit is in compliance with the Basin Plan objective. The Order now includes a receiving water limit to assure that the discharge does not cause or contribute to an excursion above the Basin Plan objective in the receiving water.

The addition of the 10-year averaging period may be justified under section 303(d)(4). When the Basin Plan was last revised, the averaging period for EC for the Feather River was inadvertently not included in the revision. The EC limits for the Sacramento River did include the 10 year averaging period.

Based on an evaluation of a discharge at up to a monthly average of 1000  $\mu\text{mhos/cm}$ , this increase is still considered protective of the receiving water downstream of the discharge into the Feather River. Using a mass balance under the following conservative assumptions:

- Yuba City consistently discharges at 1,000  $\mu\text{mhos/cm}$  at 10.5 mgd;
- Linda County consistently discharges at 780  $\mu\text{mhos/cm}$  at 5.0 mgd;
- The estimate for the 10-year 90<sup>th</sup> percentile EC upstream of Yuba City is 110  $\mu\text{mhos/cm}$  (based on the 90<sup>th</sup> percentile calculated from data from 2 January 1998 through June 28, 2006); and
- The critical low flow upstream of Yuba City discharge is 2,327 mgd (representing the harmonic mean as it applies to criteria that are applicable over longer time periods).

The 10 year 90th percentile EC of the Feather River is estimated as follows:

$$\text{EC} = ((\text{ECLinda} * \text{QLinda}) + (\text{ECYuba City} * \text{QYuba City}) + (\text{ECFeather River} * \text{QFeather River})) / (\text{QLinda} + \text{QYuba} + \text{QFeather})$$

$$115 \mu\text{mhos/cm} = ((780 \mu\text{mhos/cm} \times 5.0 \text{ mgd}) + (1,000 \mu\text{mhos/cm} \times 10.5 \text{ mgd}) + (110 \mu\text{mhos/cm} \times 2,327 \text{ mgd})) / (5.0 \text{ mgd} + 10.5 \text{ mgd} + 2,327 \text{ mgd})$$

The estimated 10 year 90th percentile EC of the Feather River is estimated to be approximately 115  $\mu\text{mhos/cm}$ , which is lower than the 150  $\mu\text{mhos/cm}$  water quality objective.

To be consistent with the anti-backsliding requirements, the permit also contains an average monthly effluent limitation for EC of 1000  $\mu\text{mhos/cm}$ . In addition, the permit includes a receiving water limit for EC that states: "*The discharge cannot cause or contribute to the Feather River downstream of the discharge to exceeding an EC concentration of 150  $\mu\text{mhos/cm}$  over a 10 year rolling average.*"

- i. The effluent limits for aluminum are not less stringent than the effluent limits that were currently effective at the time this amended order was adopted. The effluent limits in effect in Order R5-2007-0134 were the performance-based effluent limits, which have been carried forward to the amended order. Therefore, this change in effluent limits for aluminum is not considered backsliding.

As described further in Section IV.D.4 below, these changes are consistent with the antidegradation provisions of 40 CFR §131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing water quality will be insignificant.

#### 4. Satisfaction of Antidegradation Policy

This Order provides for an increase in the volume and mass of pollutants discharged and is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Detailed socioeconomic and alternatives analyses are required when the water quality impacts are significant. APU 90-004 states: "...a complete antidegradation analysis is not required if...[t]he Regional Board determines the proposed action will produce minor effects which will not result in a significant reduction of water quality..." This is consistent with the federal guidance that states: "Applying antidegradation review requirements only to those activities that may result in significant degradation of water quality is a useful approach that allows states and tribes to focus their resources where they may result in the greatest environmental protection" (EPA, 2005). Although the Discharger concluded that the impacts to the Feather River would be insignificant, a complete analysis was performed by the Discharger. The Yuba City "Antidegradation Analysis for Proposed Wastewater Treatment Facility Discharge Modification" report was originally submitted with the Report of Waste Discharge and was resubmitted on 15 June 2007 to address comments from the Regional Water Board. A final "Antidegradation Analysis for Proposed Wastewater Treatment Facility Discharge Modification" report was provided to the Regional Water Board on 15 August 2007 that addressed additional comments from the Regional Water Board staff. The following is a summary of the findings from the antidegradation analysis report submitted by the Discharger to evaluate potential degradation due to the proposed increase in regulated discharge from 7.0 mgd to 10.5 mgd:

- a. **Water Quality Parameters and Surface Water Beneficial Uses Which Will Be Affected By This Order and the Extent of the Impact.** This Order does not impact beneficial uses of the receiving waters or downstream receiving waters. All beneficial uses will be maintained and protected. This Order provides for an increase in the volume and mass of pollutants discharged to the Feather River. To determine the extent of the impact on the receiving water, the Discharger's antidegradation analysis presents a CORMIX/mass balance analysis for constituents of concern (constituents contained in Order No. R5-2003-0085, constituents on the Section 303(d) list for the Feather River, and constituents showing reasonable potential according to the State Implementation Policy) having sufficient monitoring data.

Particularly the water quality impacts assessment evaluates the effects of increasing the Discharger's wastewater treatment facility's permitted discharge capacity, from 7.0 mgd to 10.5 mgd, on Feather River water quality downstream of the discharge. Water quality conditions were compared to existing water quality objectives and recommended criteria when applicable. Water quality conditions were estimated at the end of the zone of initial dilution (ZID) and lip of the falls (LOF) for constituents with acute and chronic aquatic criteria, respectively.

Water quality conditions were estimated downstream of the diffuser, at a distance of two river lengths, for constituents with non-aquatic life criteria. In both cases,



upstream and effluent average concentrations are mixed at the respective critical dilutions to assessing long-term, chronic conditions in the river. The following table summarizes the projected average downstream concentrations resulting from the increase in discharge in comparison to the limiting water quality objective.

**Table F-26. Summary of Projected Average Downstream Concentrations and Mass Loadings**

Constituent	Limiting Objective	Concentrations <sup>(1)</sup>			Loads <sup>(2)</sup>			
		Current	Future	LYRA	Current	Future	LYRA	ΔEff
<b>Metals</b>	<b>µg/L</b>	<b>µg/L</b>			<b>lb/day</b>			
Arsenic	10	1.8	1.8	1.8	9.8	9.9	14.7	0.1
Cadmium	1.0	0.15	0.15	0.15	0.8	0.8	1.2	0.01
Copper	5.4	1.3	1.4	1.4	7.1	7.4	11.0	0.3
Lead	0.75	0.42	0.43	0.42	2.3	2.4	3.4	0.1
Mercury	0.05	0.0023	0.0023	0.0023	0.013	0.013	0.0	0.0001
Thallium	1.7	0.47	0.47	0.47	2.6	2.6	3.8	0.0
Zinc	51.5	5.9	6.2	6.2	32	34	51	1.8
Cyanide	5.2	1.2	1.3	1.2	6.3	7.3	9.6	1.1
<b>Organics</b>	<b>µg/L</b>	<b>µg/L</b>			<b>lb/day</b>			
Chlorodibromomethane	0.41	0.07	0.07	0.07	0.38	0.38	0.57	0.002
Chloroform	80	0.08	0.09	0.09	0.44	0.49	0.74	0.057
Dichlorobromomethane	0.56	0.06	0.06	0.06	0.33	0.33	0.49	0.002
cis-1,2-Dichloroethane	0.38	0.06	0.06	0.06	0.33	0.33	0.49	0.002
Tetrachloroethylene	0.80	0.06	0.06	0.06	0.33	0.33	0.49	0.002
Trichloroethylene	2.7	0.06	0.06	0.06	0.33	0.33	0.49	0.002
Pentachlorophenol	0.28	1.0	1.0	1.0	5.5	5.5	8.2	0.03
2,4,6-Trichlorophenol	2.1	1.0	1.0	1.0	5.5	5.5	8.2	0.03
Bis (2-ethylhexyl) phthalate	1.8	0.60	0.61	0.61	3.3	3.3	5.0	0.07
n-Nitrosodi-n-propylamine	0.0050	0.58	0.58	0.58	3.2	3.2	4.7	0.02
<b>Organochlorine Pesticides</b>	<b>µg/L</b>	<b>µg/L</b>			<b>lb/day</b>			
Organochlorine pesticides	ND	0.0020	0.0020	0.0020	0.011	0.011	0.016	0.0001
gamma-BHC	0.005	0.0020	0.0020	0.0020	0.011	0.011	0.016	0.0001
delta-BHC	NA	0.0020	0.0020	0.0020	0.011	0.011	0.016	0.0001
Endrin Aldehyde	0.76	0.0030	0.0030	0.0030	0.016	0.016	0.025	0.0001
<b>Minerals</b>	<b>µg/L</b>	<b>µg/L</b>			<b>lb/day</b>			
Aluminum	87	241	240	242	1,316	1,321	1,980	4.2
Iron, dissolved	300	42	42	42	227	229	342	2.0
Manganese, dissolved	50	8.4	8.5	8.5	46	46	69	0.8
Molybdenum	10	0.31	0.32	0.32	1.7	1.8	2.6	0.06
Chloride	106	1.8	1.9	1.9	9.6	10.4	15.5	0.8
<b>Nutrients</b>	<b>mg/L</b>	<b>mg/L</b>			<b>lb/day</b>			
Ammonia-N	20.2	0.23	0.28	0.28	1,254	1,527	2,290	410
Nitrite (NO <sub>2</sub> -N)	1.0	0.10	0.10	0.10	545	545	818	2.7
NO <sub>3</sub> +NO <sub>2</sub> (sum as N)	10	0.17	0.17	0.17	927	927	1,390	9.9
<b>Non-Priority Organics and Pesticides</b>	<b>µg/L</b>	<b>µg/L</b>			<b>lb/day</b>			
MBAS	500	56	56	56	305	307	458	1.6
MTBE	5.0	0.06	0.06	0.06	0.33	0.33	0.49	0.002
Diazinon	0.10	0.042	0.043	0.044	0.23	0.24	0.36	0.007
Thiobencarb	1.0	0.95	0.95	0.95	5.2	5.2	7.8	0.03
<b>Conventionals</b>	<b>mg/L, µmhos/cm, log equ.</b>	<b>mg/L, µmhos/cm, log equ.</b>			<b>lb/day</b>			
Total Dissolved Solids	450	68	69	69	370,000	380,000	560,000	5,400

Constituent	Limiting Objective	Concentrations <sup>(1)</sup>			Loads <sup>(2)</sup>			
		Current	Future	LYRA	Current	Future	LYRA	ΔEff
Electrical Conductivity	150	88	88	88	--	--	--	--
pH	6.5 – 8.5	7.2	7.2	7.2	--	--	--	--
Total Residual Chlorine <sup>(3)</sup>	--	--	--	--	--	--	--	--
Biochemical Oxygen Demand <sup>(4)</sup>	--	--	--	--	--	--	--	--
Total Suspended Solids <sup>(5)</sup>	--	--	--	--	--	--	--	--
Settleable Solids <sup>(6)</sup>	--	--	--	--	--	--	--	--
Total Coliform <sup>(6)</sup>	--	--	--	--	--	--	--	--

(1) Current corresponds to 7.0 MGD, Future corresponds to 10.5 MGD, and LYRA corresponds to 10.5 MGD and 1Q10 of 1,500 cfs.

(2) Flow conditions as for Concentrations, and ΔEff is the increase in load to the river in moving from 7.0 MGD to 10.5 MGD.

(3) An increase in discharge volume from 7.0 MGD to 10.5 MGD will result in no change to the downstream chlorine residual concentration, as the effluent concentrations are undetected.

(4) An analysis of downstream dissolved oxygen indicated no significant decrease.

(5) Due to the lower effluent concentrations than river concentrations, average downstream TSS levels are projected to decrease.

(6) The effect of an increase in discharge volume from 7.0 MGD to 10.5 MGD cannot be estimated due to a lack of receiving water data.

Of the constituents considered in the analysis where adequate data was available, one constituent concentration (aluminum) will potentially decrease in the Feather River and one constituent concentration (iron) will be unaffected. Seven constituent concentrations (dissolved copper, total zinc, EC, dissolved manganese, mercury, methyl mercury, and molybdenum) will potentially increase in the Feather River, downstream of the discharge, by less than 2.5 percent on average (annual) with increased discharge. The other six constituents considered (ammonia, cadmium, dichlorobromomethane, MBAS, nitrite, and tetrachloroethylene) do not have sufficient ambient data to estimate the potential percent changes in loading. However, the Discharger expected that given sufficient data and assuming that these constituents are present to some degree in the Feather River, an analysis of these constituents would produce similar results to those documented in this report. Therefore, the increase in discharge is not expected to adversely affect any designated potential or existing beneficial uses of the Feather River.

**b. Scientific Rationale for Determining Potential Lowering of Water Quality.**

The approach used in the antidegradation analysis is based on the Code of Federal Regulations, Section 131.12 (40 CFR 131.12), State Water Resources Control Board (SWRCB) Resolution No. 68-16, and State Water Board issued guidance to all Regional Boards regarding the implementation of antidegradation policies in NPDES permits APU-90-004 (SWRCB, 1990). Pursuant to the guidelines, the Discharger's analysis follows the provisions for a 'complete analysis' and evaluates whether changes in water quality resulting from the proposed capacity increase are 'consistent with maximum benefit to the people of the state, will not unreasonably affect uses and will not cause water quality to be less than water quality objectives and that the discharge provides protection for existing in-stream uses and water quality necessary to protect those uses. The complete analysis is comprised of two main components: 1) a comparison of receiving water quality to the water quality objectives and/or criteria used to protect designated beneficial uses, and 2) a socio-economic analysis to establish the balance between the proposed action and the public interest. The antidegradation analysis addresses the determination of measurable water

quality impacts and whether beneficial uses are impacted by comparing estimated resulting receiving water quality to the water quality objectives and/or criteria used to protect designated beneficial uses, the evaluation of incremental loading increases and their impacts, the evaluation of costs and benefits of reducing or eliminating the load increase, and the balance of the proposed project against the public interest. Details of the rationale are provided in the Discharger's antidegradation analysis.

- c. **Description of Alternative Control Measures.** The Discharger's evaluated two primary options to off-set an allowed increase in discharge: reclamation of the wastewater and treatment. Five different reclamation alternatives were presented, based on the regional Recycled Water Facilities Master Plan that addressed the needs of the City of Marysville, the Linda County Water District, and the City of Yuba City. The alternatives and associated estimated project costs and annual operation and maintenance costs to the Discharger to implement the alternatives are summarized below:
- i. Facility improvements to disinfected tertiary treatment – landscape and agricultural irrigation (\$516.2 million; \$8.3 million/year)
  - ii. Facility improvements to disinfected tertiary treatment – agricultural irrigation only (\$471.4 million; \$5.8 million/year)
  - iii. Yuba City Wastewater Treatment Facility and Marysville Wastewater Treatment Facility effluent to Linda County Water District Wastewater Treatment Facility with Linda County Water District Wastewater Treatment Facility improvements to disinfected tertiary treatment – landscape and agricultural irrigation (\$489.7 million; \$7.2 million/year)
  - iv. Linda County Water District and Marysville Wastewater Treatment Facility effluent to Yuba City Wastewater Treatment Facility with Yuba City Wastewater Treatment Facility improvements to disinfected tertiary treatment – landscape and agricultural irrigation (\$491.9 million; \$7.4 million/year)
  - v. Marysville Wastewater Treatment Facility effluent to Linda County Water District Wastewater Treatment Facility with Linda County Water District Wastewater Treatment Facility improvements to disinfected tertiary treatment – Yuba City Wastewater Treatment Facility treatment upgrade and shared distribution piping between the Linda County Water District and Yuba City Wastewater Treatment Facilities – landscape and agricultural irrigation (\$495.5 million; \$6.6 million/year)

Based on Region-wide benefit considerations, alternative v. above was used as the preferred project for further analysis.

The advanced treatment options evaluated by the Discharger included biological nutrient removal, granulated activated carbon, and microfiltration/reverse

osmosis (MF/RO). Based on the pollutants that would need to be removed, the MF/RO alternative was selected for further analysis. For the MF/RO alternative, the associated estimated project costs were \$21.7 million and the annual operation and maintenance costs were estimated to be \$2.06 million.

The socioeconomic impacts to the Discharger were evaluated in two ways; the impact of individual households due to sewer fee increases, and the impact on the community based. The following summarizes the estimated impact to sewer fees.

**Table F-27. Comparison of Current Treatment Costs to Other Treatment Alternatives**

Option	Monthly Residential Fee	Annual Residential Fee	% Increase in Treatment Cost above Current Level
Current Treatment	\$23.88	\$286.56	--
<b>Reclamation</b>			
Existing Ratepayers	\$24.66	\$295.92	3.3
Future Ratepayers	\$45.62	\$547.44	91
<b>MF/RO</b>			
Existing Ratepayers	\$27.88*	\$334.56*	17
Future Ratepayers	\$36.41*	\$436.92*	52

\* Does not include costs for brine disposal.

- d. **Description of Socioeconomic Evaluation.** The Discharger estimated the community impacts to the City of Yuba City using the economic impact model IMPLN (Impact Analysis for PLANning). Their analysis was based on the assumption that sewer fee increases to households in the City of Yuba City will reduce discretionary spending (disposable income). The loss of discretionary spending will reduce demand for local goods and services, which in turn will reduce demand for local labor, resulting in increased unemployment. Results of the model indicated that the low and middle income households would contribute the most towards financing either option (consuming more than 2 percent of disposable personal income). The economic impact projected is summarized below:

**Table F-28. Summary of Economic Impact Results**

Option	Economic Indicators per Year			
	Labor Income Loss	Indirect Business Tax Loss	Employment Loss	Total Output Loss
Reclamation	\$948,772	\$213,238	32	\$4,440,197
MF/RO	\$834,919	\$187,649	28	\$3,907,374

It should be noted that according to data from 2003 through 2006, the unemployment rates in Yuba and Sutter Counties are almost double the average unemployment rate for California.

The socioeconomic evaluation was performed in the Discharger's antidegradation analysis to determine if the lowering of the water quality is in the "best interest" of the people of the State and accommodates important economic and social development. The socioeconomic evaluation considered:

- i. The increase in permitted discharge capacity is necessary to accommodate important economic and social development within the City of Yuba City, consistent with the City's general plan. Failure to approve the increase would have significant adverse economic and social impacts on the City and its citizens and businesses (as measured by increases in sewer rates and projected unemployment).
  - ii. The increase will not adversely affect existing or future beneficial uses of the Feather River, nor will it cause water quality to fall below applicable water quality objectives.
  - iii. The increase, while causing minor water quality changes to most constituents, will produce minor water quality improvement with respect to iron, ammonia, and aluminum. Iron currently exceeds the water quality objective upstream of the discharge location.
  - iv. The benefits of maintaining existing water quality for the constituents analyzed are not commensurate with the cost. The small decrease in quality with respect to the constituents considered in the analysis is unlikely to affect beneficial uses of the Feather River.
- e. **Justification for Socioeconomic Considerations.** Potential minor degradation identified in the Discharger's antidegradation analysis due to this Order is justified by the following socioeconomic considerations
- i. Economic costs and benefits of maintaining existing water quality;
  - ii. Feasibility of alternative control measures in reducing, eliminating, or compensating for negative impacts for the project; and
  - iii. Balance of economic considerations with environmental benefit achieved by the alternative control measures.

Based on the water quality analysis results, the costs associated with reclamation or advanced treatment were considered unduly high compared to the benefits that would be gained by offsetting the potential incremental changes in water quality, which are incidental. If the Regional Water Board grants the increase in discharge but requires measures to offset water quality impacts, the Discharger will need to consider reclaiming or subject the incremental increase in the discharge to advanced treatment. An assessment of potential for reclaimed water results in considerable capital outlay for treatment and conveyance of the produced water. Advanced treatment is expensive, energy intensive and creates brine for which there are currently no readily available methods of disposal.

Thus, advanced treatment would significantly impact the City's employment rate and the City's economic rating. The following provides a comparison of the socio-economic impacts and environmental benefits and impacts of the evaluated options.

**Table F-29. Comparison of the Environmental Benefits and Socio-Economic Impacts**

Alternative Control Measure	Environmental Benefits	Socio-Economic Costs	Concerns
Reclamation	Addresses all incremental changes in water quality.	\$21.74 increase in monthly sewer service fee. Increase in unemployment (32 jobs)	Demand for reclaimed water may not be year-round. Impact local and regional economies. High cost.
MF/RO*	Addresses all incremental changes in water quality.	\$12.53 increase in monthly sewer service fee. Increase in unemployment (28 jobs)	Impact local and regional economies. High cost. Creation of hazardous waste. High energy demands.

\* Does not include ultimate brine disposal.

The increase in the volume and mass of pollutants discharged will not cause a violation of water quality objectives. The increase in the discharge allows wastewater utility service necessary to accommodate important housing and economic expansion in the area, and is considered to be of maximum public benefit to the people of the State. Compliance with the requirements of this Order will result in the use of best practical treatment or control of the discharge.

- f. **Groundwater.** The Discharger utilizes percolation ponds at times to dispose of wastewater from the wastewater treatment plant. Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, toxic organics, metals and oxygen demanding substances (BOD). Percolation from the ponds may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:
  - i. the degradation is limited in extent;

- ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
- iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

Groundwater monitoring results, submitted by the Discharger during the previous permit term indicate that total coliform levels at times has degraded groundwater quality when compared to background. A groundwater limitation for total coliform has been included in this order at the water quality objective for protection of the municipal and domestic supply and agricultural supply beneficial uses of groundwater.

#### **E. Performance Based Limitations**

1. **Lead.** As discussed in more detail in Section IV.D.3. of this Fact Sheet, limits should only be as high as is justified under the state and federal antidegradation policies. This permit contains lead effluent limitations that have been revised to comply with the antidegradation policies and are based on performance, not only dynamic modeling results. Specifically, the 99.9th percentile concentration of the effluent data was used to establish the performance-based effluent limitations for lead. Typically the 99.9th percentile is used as the basis for a performance-based maximum daily effluent limitation.

Performance based effluent limitations were calculated for lead by plotting the data to determine normality for non-transformed and log-normal transformed data sets. The 99.9 percentile was determined from the best fit data set and represents the MDEL. The performance-based MDEL was 3.2 µg/L; however, the MEC was 3.3 µg/L. Therefore the MEC was used as the MDEL. Figure F-2 represents the best fit data set for lead and Tables F-29 include additional data as well as the MDEL. The data set used to calculate the performance based limits is based on data analyzed between November 2003 to August 2009.

Figure F-2. Lead Probability Plot

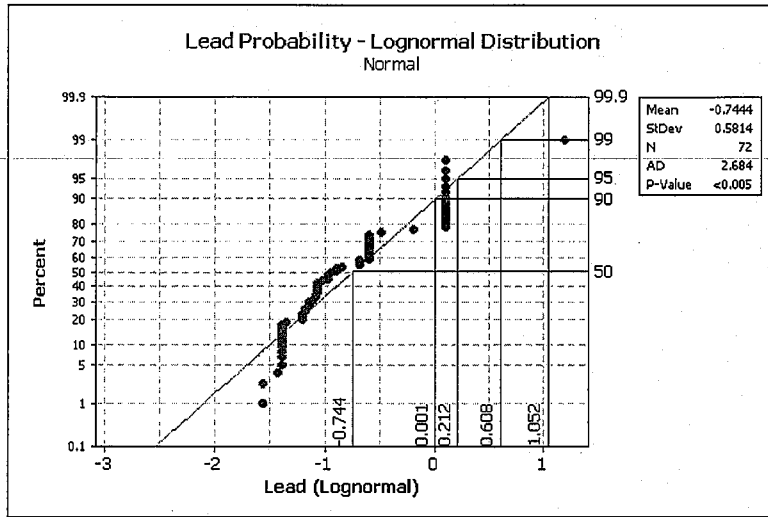


Table F-30. Performance-Based Calculations for Lead

Number of Data Points	72
Minimum Concentration (µg/L)	< 0.21
Maximum Concentration (µg/L)	3.3
Mean (log-normal)	-0.744
Standard Deviation (log-normal)	0.581
99.9% Upper Confidence Interval (log-normal)	1.17
99.9% Upper Confidence Interval	3.2
<b>MDEL (µg/L)</b>	<b>3.3<sup>(1)</sup></b>

<sup>(1)</sup> Upper confidence interval for 99.9% confidence is less than the MEC; therefore, the MEC was used as the MDEL.



**Summary of Final Effluent Limitations  
Discharge Point Nos. 001 and 002**

**Table F-31. Summary of Final Effluent Limitations**

Parameter	Units	Effluent Limitations					Basis <sup>(1)</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Average Dry Weather Flow	mgd	--	--	--	--	--	DC
<i>Conventional Pollutants</i>							
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	30	45	60	--	--	CFR
	lbs/day <sup>(2)</sup>	2,627	3,941	5,254	--	--	
	% Removal	85	--	--	--	--	
pH	standard units	--	--	--	6.5	8.5	BP
Total Suspended Solids (TSS)	mg/L	30	45	60	--	--	CFR
	lbs/day <sup>(2)</sup>	2,627	3,941	5,254	--	--	
	% Removal	85	--	--	--	--	
<i>Priority Pollutants</i>							
Chlorodibromomethane	µg/L	76	--	166	--	--	CTR
Copper, Total Recoverable	µg/L	50	--	85	--	--	CTR
Cyanide, Total (as CN)	µg/L	24	--	48	--	--	CTR
Dichlorobromomethane	µg/L	111	--	280	--	--	CTR
Diethyl Phthalate	µg/L	10	--	21	--	--	NAWQC
Lead, Total Recoverable	µg/L	--	--	3.3	--	--	CTR
Mercury, Total Recoverable	lbs/year	0.672 <sup>(3)</sup>	--	--	--	--	--
Persistent Chlorinated Hydrocarbon Pesticides	µg/L	--	--	--	--	ND <sup>(4)</sup>	BP
Tetrachloroethylene	µg/L	164	--	514	--	--	CTR
Thallium, Total Recoverable	µg/L	1.7	--	3.4	--	--	CTR
Zinc, Total Recoverable	µg/L	661	--	984	--	--	CTR
<i>Non-Conventional Pollutants</i>							
Aluminum, Total Recoverable	µg/L	--	200 <sup>(5)</sup>	353	--	--	NAWQC
Ammonia Nitrogen, Total (as N)	mg/L	31	--	60	--	--	NAWQC
Chlorine, Total Residual	mg/L	0.01 <sup>(6)</sup>	--	0.02 <sup>(7)</sup>	--	--	BP
Diazinon	µg/L	0.08	--	0.16	--	--	BP
Electrical Conductivity @ 25°C	µmhos/cm	1,000	--	--	--	--	PB
Iron, Total Recoverable	µg/L	300 <sup>(8)</sup>	--	--	--	--	SEC MCL
Manganese, Total Recoverable	µg/L	200 <sup>(8)</sup>	--	--	--	--	SEC MCL, PB
Methylene Blue Active Substances (MBAS)	mg/L	100	--	--	--	--	SEC MCL
Molybdenum, Total Recoverable	µg/L	32	--	--	--	--	AGR, PB

Parameter	Units	Effluent Limitations					Basis <sup>(1)</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Nitrite Nitrogen, Total (as N)	mg/L	221	--	--	--	--	MCL
Settleable Solids	mL/L/hr	0.1	--	0.2	--	--	BP
Total Coliform	MPN/100 mL	240 <sup>(9)</sup>	23 <sup>(10)</sup>	--	--	--	TITLE 22
Acute Toxicity <sup>(11)</sup>	% survival	--	--	--	--	--	

<sup>(1)</sup> DC - This Order contains a regulated flow of 10.5 mgd as an average dry weather flow. This flow limit is based on the design capacity of the Facility.

CFR – 40 CFR Part 133 (Secondary treatment standards).

BP- Based on water quality objectives contained in the Basin Plan.

CTR - Based on water quality criteria contained in the California Toxics Rule, and applied as specified in the SIP.

NAWQC - Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.

PB – Based on the performance of the Facility.

SEC MCL - Based on California Secondary Maximum Contaminant Level.

AGR – Based on water quality criteria for protection of agriculture.

MCL - Based on California Primary Maximum Contaminant Level.

TITLE 22 - Based on CA Dept. of Health Services Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

<sup>(2)</sup> Based upon a design treatment capacity of 10.5 mgd average dry weather flow.

<sup>(3)</sup> Applied as total pounds/year.

<sup>(4)</sup> The non-detectable (ND) limitation applies to each individual pesticide. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use USEPA standard analytical techniques with a maximum acceptable detection level of 0.05 µg/L. Persistent chlorinated hydrocarbon pesticides include aldrin, dieldrin, chlordane, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha-BHC, beta-BHC, delta-BHC, and gamma-BHC or lindane), endosulfan (alpha and beta), endosulfan sulfate, toxaphene, 4,4'DDD, 4,4'DDE, and 4,4'DDT.

<sup>(5)</sup> Applied as an annual average based on the calendar year.

<sup>(6)</sup> Applied as a 4-day average effluent limitation. Applicable only to Discharge Point No. 001.

<sup>(7)</sup> Applied as a 1-hour average effluent limitation. Applicable only to Discharge Point No. 001.

<sup>(8)</sup> Applied as an annual average based on the calendar year.

<sup>(9)</sup> 240 MPN/100 mL not to be exceeded more than once in any 30-day period.

<sup>(10)</sup> Applied as a 7-day median.

<sup>(11)</sup> Survival of aquatic organisms in pH buffered 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay -----70%

Median for three or more consecutive bioassays -----90%

## F. Interim Effluent Limitations

- 1. Diazinon and gamma-BHC.** The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents in this Order.

The interim limitations for diazinon and gamma-BHC in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data.

When there are less than 10 sampling data points available, the *Technical Support*

*Document for Water Quality- Based Toxics Control ((EPA/505/2-90-001), TSD)* recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of 10 data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than 10 sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

The Regional Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

The following table summarizes the calculations of the interim effluent limitations for diazinon and gamma-BHC.

**Table F-32. Interim Effluent Limitation Calculation Summary**

Parameter	MEC	Mean	Std. Dev.	# of Samples	Interim Limitation
Diazinon	0.47	0.088	0.103	45	0.47
gamma-BHC	0.053	0.006	0.013	27	0.05

Note: All values are in µg/L.

### G. Land Discharge Specifications

1. The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater. Except for pH, the specifications included in this Order are carried over from Order No. R5-2003-0085.
2. Under the previous Order, land discharge specifications specified that ponds shall not have a pH less than 6.5 or greater than 8.5. The State Water Board in Order WQO 2004-0013 directed the Regional Water Board to apply the pH limitations for discharges from the Facility into the ponds rather than in the ponds in order to be protective of the receiving water should a discharge from the ponds occur. In accordance with State Water Board direction, pH limitations based on the Basin Plan have been included for discharges into the ponds (Discharge Point No. 002).
3. Treatment pond operating requirements are included in this Order to ensure proper operation of the disposal ponds and minimize the potential for impacts to water quality.

## H. Reclamation Specifications

[Not Applicable]

## V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

### A. Surface Water

1. CWA sections 303(a through c), require states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rationale for these numeric receiving surface water limitations are as follows:

- a. **Bacteria.** The Basin Plan includes a water quality objective that “[i]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.”

Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.

- b. **Biostimulatory Substances.** The Basin Plan includes a water quality objective that “[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.
- c. **Chemical Constituents.** The Basin Plan includes a water quality objective that “[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.
- d. **Color.** The Basin Plan includes a water quality objective that “[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses.” Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.
- e. **Dissolved Oxygen.** The Feather River has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to the Feather River, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that “...the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.” This objective was included as a receiving water limitation in this Order.

- f. **Floating Material.** The Basin Plan includes a water quality objective that “[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.
- g. **Oil and Grease.** The Basin Plan includes a water quality objective that “[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.” Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.
- h. **pH.** The Basin Plan includes water quality objective that “[T]he 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” This Order includes receiving water limitations for both pH range

and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

- i. **Pesticides.** The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.
- j. **Radioactivity.** The Basin Plan includes a water quality objective that “[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.” The Basin Plan states further that “[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations...” Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.
- k. **Suspended Sediments.** The Basin Plan includes a water quality objective that “[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses” Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.
- l. **Settleable Substances.** The Basin Plan includes a water quality objective that “[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” Receiving Water Limitations for settleable substances are included in this Order and are based on the Basin Plan objective.
- m. **Suspended Material.** The Basin Plan includes a water quality objective that “[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.
- n. **Taste and Odors.** The Basin Plan includes a water quality objective that “[W]ater 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.” Receiving Water Limitations for

taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.

- o. **Temperature.** The Feather River has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that “[a]t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.” This Order includes a receiving water limitation based on this objective.
- p. **Toxicity.** The Basin Plan includes a water quality objective that “[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.
- q. **Turbidity.** The Basin Plan includes a water quality objective that “[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
  - Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.
  - Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.
  - Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.”

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

- r. **Electrical Conductivity.** The Basin Plan includes a water quality objective that states: Electrical conductivity (at 25°C) “[s]hall not exceed 150 micromhos/cm (90 percentile) in well-mixed waters of the Feather River.” The Basin Plan objective is applied as a 10-year rolling average. A numeric Receiving Surface Water Limitation for electrical conductivity is included in this Order and is based on the Basin Plan objective for electrical conductivity.

## B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations

that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 ml. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

## **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

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

### **A. Influent Monitoring**

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD<sub>5</sub> and TSS percent reduction requirements). The three times per week monitoring for BOD<sub>5</sub> and TSS, continuous monitoring for flow and pH, and semi-annual monitoring for priority pollutants have been retained from Order No. R5-2003-0085.
2. Due to the significant contribution from industrial users that discharge nutrient deficient wastewater to the Facility, the previous Order included monitoring for ammonia and phosphorus in the influent. This monitoring will be carried over to this Order, however to ensure a better representation of influent characteristics, the sample type has been changed from grab to a flow proportioned 24-hour composite for both parameters. The monitoring frequency for ammonia has been reduced from three times per week to weekly; the monthly frequency for phosphorus has been retained from the previous Order.
3. As described in Section IV.C.3 above for salinity, monitoring for salinity (EC) in the influent will be required quarterly in conjunction with effluent and water supply



monitoring as a means to provide data to evaluate BPTC for discharges from the Facility.

## B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring of the discharge to the Feather River (Discharge Point No. 001) at Monitoring Location EFF-001 has been established as follows:
  - a. Effluent monitoring frequencies and sample types for flow (continuous), BOD<sub>5</sub> (three times per week), total suspended solids (three times per week), bis (2-ethylhexyl) phthalate (monthly), chlorodibromomethane (monthly), copper (monthly), cyanide (monthly), dichlorobromomethane (monthly), lead (monthly), mercury (monthly), persistent chlorinated hydrocarbon pesticides (monthly), tetrachloroethylene (monthly), zinc (monthly), priority pollutants (twice per year), total aluminum (monthly), diazinon (monthly), hardness (monthly), total iron (monthly), total manganese (monthly), methylene blue active substances (monthly), molybdenum (monthly), nitrite (twice per month), and total coliform (three times per week) have been retained from Order No. R5-2003-0085 to determine compliance with effluent limitations for these parameters.
  - b. The monitoring frequency for ammonia has been retained from Order No. R5-2003-0085. However, the sample type has been modified from a grab sample to a 24-hour composite sample to be consistent with the sample type for ammonia in the influent.
  - c. Monitoring data collected over the previous term indicates that the effluent limitation for settleable solids was exceeded eight times. Therefore, the sample type (24-hour composite) and monitoring frequency (5/week) have been retained from Order No. R5-2003-0085.
  - d. Monitoring data collected over the previous term indicates effluent electrical conductivity concentrations that are considerably greater than the water quality objective. Therefore, the monitoring frequency (5/week) has been retained from Order No. R5-2003-0085.
  - e. Monitoring data collected over the previous permit term for nitrate, arsenic, cadmium, chloroform, cis-1,2-dichloroethene, ethion, methyl tert-butyl ether, N-nitrosodi-n-propylamine, pentachlorophenol, thiobencarb, trichloroethylene, and 2,4,6-trichlorophenol did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2003-0085.

- f. Monitoring data submitted by the Discharger during the previous permit term indicates that the discharge has reasonable potential to exceed water quality criteria for diethyl phthalate and thallium. Monthly monitoring using 24-hour composite samples is required, consistent with the frequency for other toxic pollutants, for diethyl phthalate and thallium to determine compliance with the applicable effluent limitations.
- g. As discussed in Section IV.C.3.ff of this Fact Sheet, although there were several detections of 2,3,7,8-TCDD congeners, almost all of the values were estimated and therefore no WQBELs were established. To collect the data necessary to determine the prevalence of 2,3,7,8-TCDD congeners in the Facility effluent, consecutive quarterly monitoring of the 2,3,7,8-TCDD congeners will be required in this Order for the first two years and annual monitoring thereafter.
- h. As discussed in Section IV.C.3.i of this Fact Sheet, although there were several detections of bis (2-ethylhexyl) phthalate, due to concerns with contamination from plastics in monitoring equipment, it is uncertain whether bis-(2-ethylhexyl) phthalate is truly present in the effluent discharge. To collect the data necessary to determine the prevalence in the effluent, the Regional Water Board established monthly monitoring for bis (2-ethylhexyl) phthalate, consistent with the requirements in Order No. R5-2003-0085.
- i. Although chloride, electrical conductivity, sulfate, and total dissolved solids exceeded applicable water quality objectives during the previous permit term, this order only establishes an effluent limit for electrical conductivity in order to regulate discharges of salinity into the Feather River. Due to concerns about salinity in the Central Valley region, monthly monitoring for chloride, sulfate, and total dissolved solids is included in this Order in addition to electrical conductivity.
- j. Monitoring data submitted by the Discharger during the previous permit term indicates detectable concentrations that the discharge of total phosphorus may have the reasonable potential to exceed applicable water quality objectives. In addition, the Discharger adds ammonia polyphosphate to the activated sludge process as a nutritional supplement. Monthly monitoring of total phosphorus has been established in order to continue to gather data until the applicability and relationship of this criterion can be determined.
- k. The Discharger submitted a thermal impact study, a requirement of Order No. R5-2003-0085. As a result of the study, it was concluded that the discharge from the Facility has a minimal affect on the temperature of the Feather River. Therefore, the daily monitoring frequency contained in the previous Order has been reduced to three times per week.
- l. The requirement for continuous monitoring for total residual chlorine and sodium bisulfite is retained from the previous Order to monitor the effectiveness of the chlorination/dechlorination process when discharging to the Feather River through Discharge Point No. 001. Reporting of these two constituents should insure compliance with the chlorine residual effluent limitations. Monitoring for

sodium bisulfite is not required when Facility effluent is directed to the disposal ponds (Discharge Point No. 002).

In its petition to the State Water Board, and in light of the fact that continuous monitoring was required in Order No. R5-2003-0085, the Discharger requested time-based allowances for chlorine and sodium bisulfite. In the Staff Report supporting State Water Board Order WQO 2004-0013, the State Water Board stated that the Regional Water Board had adequately addressed analytical concerns for chlorine, and time-based excursion allowances need not be provided.

- m. The requirement for continuous monitoring for pH is retained from the previous Order. In its petition to the State Water Board, and in light of the fact that continuous monitoring was required in Order No. R5-2003-0085, the Discharger requested time-based allowances for pH. In the Staff Report supporting State Water Board Order WQO 2004-0013, the State Water Board stated that excursion allowances need not be provided for pH.
  - n. Monthly monitoring using 24-hour composite samples is established for methylmercury to collect data for the development of a TMDL for methylmercury.
  - o. Oxygen-depleting constituents are present in the effluent. This Order requires monitoring five times per week using grab samples for dissolved oxygen to monitor the effects of these constituents on the quality of the discharge.
3. Effluent monitoring of the discharge to the disposal ponds (Discharge Point No. 002) at Monitoring Location EFF-001 are the same as those described above for Discharge Point No. 001, with the following exceptions:
- a. Consistent with the requirements in Order No. R5-2003-0085, effluent monitoring frequencies and sample types for total Kjeldahl nitrogen have been retained to determine compliance with land discharge specifications.
  - b. The total coliform monitoring frequency has been increased from monthly in Order No. R5-2003-0085 to weekly in order to determine compliance with the applicable effluent limitations.
  - c. The requirement for continuous monitoring for total residual chlorine is retained from the previous Order to monitor the effectiveness of the chlorination process. Monitoring for sodium bisulfite is not required when Facility effluent is directed to the disposal ponds.

### **C. Whole Effluent Toxicity Testing Requirements**

1. **Acute Toxicity.** Monthly 96-hour bioassay testing was required in the previous Order. Monitoring data submitted by the Discharger during the term of the previous Order indicates the Discharger has complied with the acute toxicity effluent limitation during the previous permit term. Except for one instance, reported percent survival

was between 75 and 100 percent. The monthly 96-hour bioassay testing is retained from the previous Order to demonstrate compliance with the effluent limitation for acute toxicity. In accordance with State Water Board Order WQO 2004-0013, and because the chronic toxicity test provides both acute and chronic toxicity information concurrently, acute toxicity testing is not necessary when chronic toxicity testing is being conducted in the same period.

Due to the presence of ammonia in the Facility effluent, and in accordance with direction provided by the State Water Board Order WQO 2004-0013, this Order also allows the Discharger to conduct acute bioassays using both pH-stabilized and pH-unstabilized tests.

During periods when the Facility discharges to the disposal ponds through Discharge Point No. 002, this Order also allows the Facility to dechlorinate the sample prior to conducting acute toxicity tests.

The previous Order required the use of grab samples. Due, in particular, to the relatively large contribution of flow from industrial users to the Facility that may result in fluctuating pollutant concentrations, as well as the proposed increase in flow from the Facility, a flow-weighted 24-hour composite sample is required. A composite sample will better characterize the effluent from the Facility.

2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing was required in the previous Order to demonstrate compliance with the Basin Plan's narrative toxicity objective. This monitoring requirement is being retained in this Order to provide the Regional Water Board with toxicity data necessary to determine if future effluent limitations would be necessary.

#### **D. Receiving Water Monitoring**

##### **1. Surface Water**

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream. The receiving water monitoring requirements for dissolved oxygen (weekly), pH (weekly), temperature (weekly), turbidity (weekly), electrical conductivity (weekly), hardness (monthly), and fecal coliform (quarterly) from Order No. R5-2003-0085 have been retained in this Order.
- b. At the request of the Discharger and because monitoring data does not exhibit a reasonable potential to exceed water quality objectives for radionuclides, the monitoring frequency has been reduced from annually to twice during the term of this Order.
- c. Quarterly monitoring for priority pollutants upstream of the discharge point is required during the third year of the permit term to collect the necessary data to determine reasonable potential as required in section 1.2 of the SIP. The pH and hardness (as CaCO<sub>3</sub>) of the upstream receiving water shall also be monitored

concurrently with the priority pollutants to ensure the water quality criteria/objectives are correctly adjusted for the receiving water when determining reasonable potential as specified in section 1.3 of the SIP.

- d. In its petition to the State Water Board, the Discharger requested that receiving water monitoring only be required during times of direct discharge to the Feather River. The State Water Board in Order WQO 2004-0013 disagreed with the Discharger and indicated that year-round receiving water monitoring at all stations is required. This Order implements the State Water Board decision.
- e. The Discharger has also requested that receiving water monitoring not be required when Feather River flows are at 50,000 cfs or above due to safety reasons. In addition, the Discharger requests that bank monitoring be allowed in lieu of monitoring from a boat, because at times their boat is used by the Fire Department for emergency rescues or other emergency operations, and there are times when their boat is not available due to mechanical failure. The monitoring frequency for receiving water monitoring is weekly for most parameters, and therefore the Discharger has some flexibility to select a day that best accommodates safe access to the receiving water. If, however, circumstances prohibit sampling from a boat, then the Order allows the Discharger to sample from the river bank. The monthly monitoring report submitted by the Discharger should indicate when an alternative monitoring location is used.

## 2. Groundwater

- a. Section 13267 of the California Water Code states, in part, *“(a) A Regional Water Board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region”* and *“(b) (1) In conducting an investigation..., the Regional Water Board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.”* The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program (Attachment E) is issued pursuant to California Water Code Section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the Facility subject to this Order.
- b. Consistent with the requirements contained in Order No. R5-2003-0085, monitoring of the groundwater must be conducted to determine if the discharge

has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution 68-16 and the Basin Plan.

- c. Via a transmittal letter to the Regional Water Board dated 2 August 2004, Kennedy/Jenks Consultants submitted on behalf of the Discharger, a hydrogeologic assessment work plan. In the work plan, it states that the current groundwater monitoring wells used by the Discharger "...provide information regarding depth to groundwater and water quality in the immediate proximity of the ponds but do not provide an adequate array to determine groundwater flow direction, gradient, continuity with the river, or assimilative capacity. This Order requires the Discharger to implement their proposed groundwater monitoring program as a means to continue groundwater monitoring. The resulting groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Water Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.
- d. Due to the fact that the groundwater monitoring program, as described in section VI.D.2.c, above has not been fully implemented by the Discharger, this Order will retain the parameters (pH, EC, total Kjeldahl nitrogen, total coliforms, and priority pollutants) and monitoring frequencies contained in Order No. R5-2003-0085. In addition, as recommended in the 2 August 2004 hydrogeologic assessment work plan, monitoring for nitrate, nitrite, fecal coliform, and TDS will be required. Groundwater monitoring will only be required during the months or calendar quarters that effluent is directed to the disposal ponds.

## **E. Other Monitoring Requirements**

### **1. Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.6.a.). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

### **2. Water Supply Monitoring**

Consistent with the requirements contained in Order No. R5-2003-0085, water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent. In particular, quarterly monitoring for electrical conductivity and total dissolved solids is required.

### **3. Disposal Pond Monitoring**

Treatment pond monitoring is required to ensure proper operation of the disposal ponds. Monitoring of the discharge to the treatment ponds at Monitoring Locations LND-001, LND-002, LND-003, LND-004, LND-005, and LND-006 has been established as follows:

- a. Weekly monitoring for freeboard, electrical conductivity, dissolved oxygen, and odors has been retained from Order No. R5-2003-0085. The Discharger requested monitoring to be reduced to twice per month, however multiple exceedances of specifications for freeboard and dissolved oxygen in the previous permit term justifies the retention of the previous monitoring requirements in order to monitor disposal pond operation. State Water Board Order WQO-2004-0013 remanded the pH requirements for the disposal ponds. Therefore, no pH limit pertaining to the disposal ponds has been retained for this Order and no monitoring of Ph is required.

## **VII. RATIONALE FOR PROVISIONS**

### **A. Standard Provisions**

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

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

section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

## B. Special Provisions

### 1. Reopener Provisions

- a. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following CWC section 13263.3(d)(3) for diazinon and gamma-BHC. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plans and dynamic modeling based on additional ambient water quality analysis, or other relevant information.
- b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.
- c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority and non-conventional pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper, lead, and zinc. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

As described in Section IV.C.3.g of this Fact Sheet, the Discharger submitted an Aluminum Water-Effect Ratio (WER) Work Plan, the protocols for which have been approved by the Regional Water Board. New information as described in the Fact Sheet Section IV.C.3.g were used to calculate the effluent limits.

- d. **Dynamic Modeling.** If the Discharger performs a study to reevaluate effluent limits for specific constituents (e.g., diethyl phthalate or cyanide) based on their dynamic model, this Order may be reopened to modify the effluent limitation for the applicable constituents.
- e. **Diazinon.** The Regional Water Board adopted a revised Basin Plan amendment on 3 May 2007 that included revised water quality objectives for diazinon. The proposed Basin Plan amendment would increase the water quality objective for



diazinon to 0.16 µg/L and 0.10 µg/L as a 1-hour average and a 4-day average, respectively. Upon approval of the amendment by USEPA, this Order may be reopened to modify the effluent limitations for diazinon.

## 2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00.) Adequate WET data must be collected to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, this provision requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

**Monitoring Trigger.** A numeric toxicity monitoring trigger of > 12 TUc (where TUc = 100/NOEC), based on a dilution factor of 12 as described in Attachment F, Section IV.C.2.c., is applied in the provision. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 8.3 percent effluent.

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

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

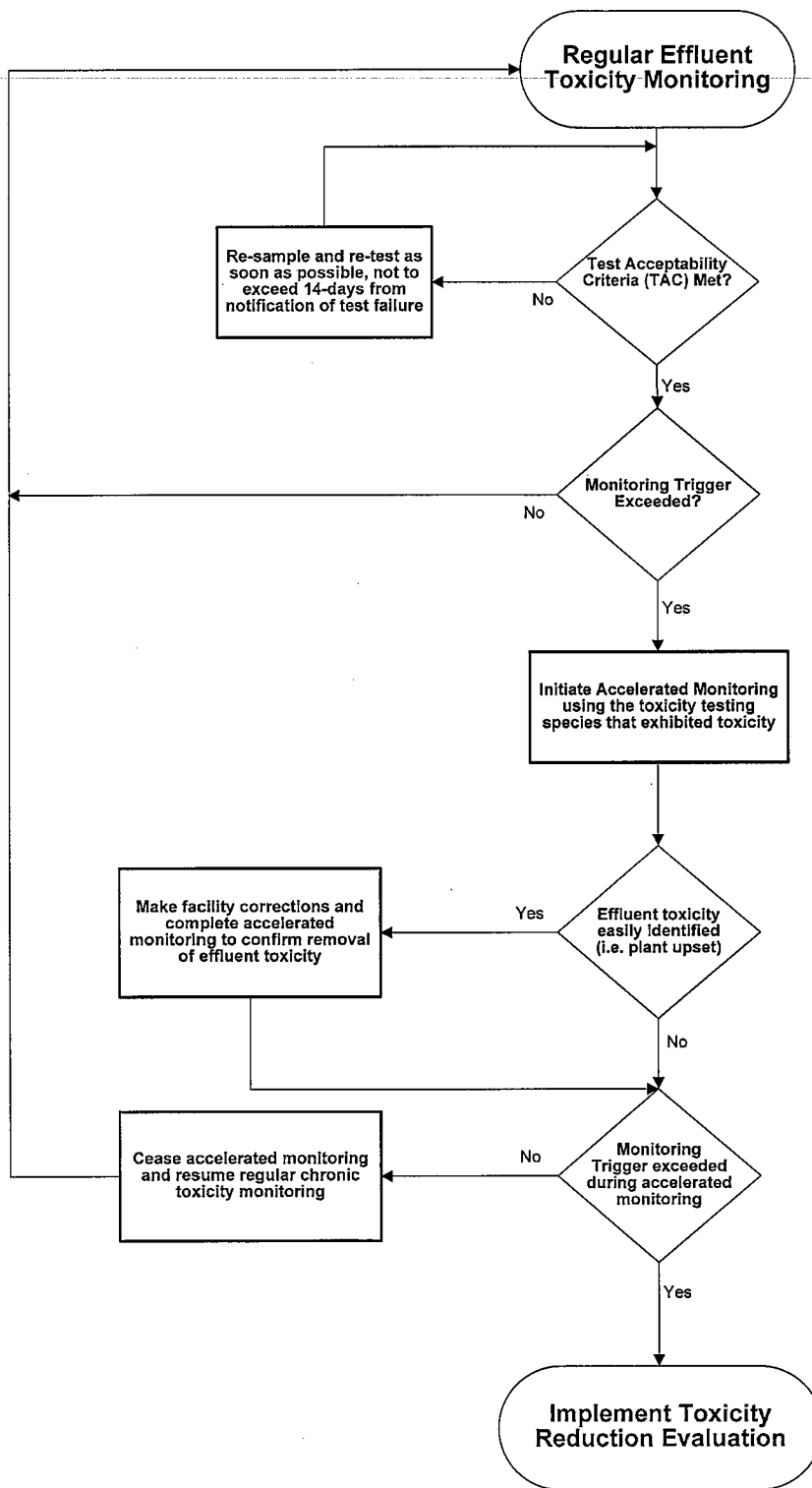
effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

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

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

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833B-99/002, August 1999.
- *Generalized Methodology for Conducting Industrial TREs*, EPA/600/2-88/070, April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures*, Second Edition, EPA 600/6-91/005F, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/080, September 1993.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.
- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.
- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.
- *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991.

Figure F-3. WET Accelerated Monitoring Flow Chart



- b. **Disposal Pond Study.** As discussed in Section IV.C.3.f of this Fact Sheet, the disposal pond study and report required in Order R5-2003-0085 (Provision H.12) has not yet been completed by the Discharger. This Order requires completion of the study as originally required in the previous Order.
  
- c. **Groundwater Monitoring.** The disposal ponds are designed to percolate, which may cause seepage of disinfected wastewater from the ponds into the Feather River or into the groundwater. In order to protect groundwater, there is a need to determine the migration of pollutants to the groundwater and to determine the direction and gradient of groundwater flow. In order to protect surface water, there is a need to assess the hydraulic continuity of the ponds with the Feather River. As discussed in Section VI.D.2 of this Fact Sheet, Order No. R5-2003-0085 required the Discharger to complete a hydrogeologic investigation to assess the impacts of the disposal ponds on water quality. Although a work plan was submitted by the Discharger, the hydrogeologic investigation was not completed. This Order requires completion of the investigation in accordance with the proposed work plan.

This provision requires the Discharger to evaluate its groundwater monitoring network to ensure there are one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. Currently, there are no groundwater monitoring wells downgradient of the disposal ponds. The Discharger must install new groundwater monitoring wells, if necessary, collect 1 year of monitoring data, and submit a report evaluating the underlying groundwater within 15 months from the permit effective date. If the monitoring shows that any constituent concentrations are increased above background water quality, within 20 months from the permit effective date, the Discharger shall submit a technical report describing the groundwater evaluation report results and critiquing each evaluated Facility component with respect to BPTC and minimizing the discharge's impact on groundwater quality.

### 3. Best Management Practices and Pollution Prevention

- a. **Pollutant Minimization Program.** As required in Section 2.4.5.1 of the SIP, a pollutant minimization program (PMP) is required when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either: 1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or 2) A sample result is reported as ND and the effluent limitation is less than the MDL. The goal of a PMP is to reduce all potential sources of a priority pollutant through pollution minimization strategies and measures to maintain effluent concentrations at or below WQBELs.
  
- b. **Pollution Prevention Plan (PPP) for Diazinon, gamma-BHC, and Salinity.** A PPP for diazinon, gamma-BHC, and salinity is required in this Order per CWC section 13263.3(d)(1)(D) as part of the interim effluent limitation for these

constituents. The PPP shall be developed in conformance with the minimum requirements specified in CWC section 13263.3(d)(3) as outlined below.

- i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.
  - ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.
  - iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.
  - iv. A plan for monitoring the results of the pollution prevention program.
  - v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.
  - vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.
  - vii. A description of the Discharger's existing pollution prevention programs.
  - viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.
  - ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.
- c. **Salinity Reduction Goal.** In an effort to monitor progress in reducing salinity discharges to the Feather River, the Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Feather River. Based on effluent data for this Facility, the Regional Water Board finds that a monthly average salinity effluent limitation of 1000  $\mu\text{mhos/cm}$  as electrical conductivity (EC) is a reasonable performance-based limitation that can be immediately achieved upon the effective date of this Order. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

- d. **2,3,7,8-TCDD and Other Dioxin and Furan Congeners Source Evaluation and Minimization Plan.** The Discharger will be required to prepare a 2,3,7,8-TCDD and other dioxin and furan congeners evaluation and minimization plan to address sources of detectable dioxins (OCDD and 1,2,3,4,6,7,8-HpCDD) and furans (OCDF) from the Facility. The plan is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of dioxin and furan congeners to the receiving water.

#### 4. Construction, Operation, and Maintenance Specifications

- a. **Treatment Pond Operating Requirements.** Consistent with the recommendations within the Technical Report supporting State Water Board Order WQO-2004-0013, the treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency. The requirements to prevent inundation may be excepted if the study under Special Provision VI.C.2.b demonstrates that inundation of the ponds due to floods poses no significant threat to water quality or if implementation of alternative measures provides equivalent protection to the satisfaction of the Regional Water Board.

- b. **Diffuser Maintenance Requirements.**

As discussed under Section IV.C.2.c of this Fact Sheet, the dilution credit provided for the discharge from the Facility is based on the modeling analysis performed by the Discharger and the current conditions of the diffuser. To ensure that the assumptions under which the Regional Water Board has approved the dilution credits used to derive effluent limitations, this Order requires annual reporting on the operational condition of the diffuser and the maintenance that has taken place to assure it is operating properly.

#### 5. Special Provisions for Municipal Facilities (POTWs Only)

- a. **Pretreatment Requirements.**

- i. The Federal Clean Water Act, Section 307(b), and Federal Regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or biosolids disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.
- ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board or the USEPA may take enforcement actions against the Discharger as authorized by the CWA.

**b. Sludge/Biosolids Discharge Specifications.**

The sludge/biosolids provisions are required to ensure compliance with State disposal requirements (Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq) and USEPA sludge/biosolids use and disposal requirements at 40 CFR Part 503.

**c. Collection System.**

These provisions are included to ensure compliance with the requirements in the 2 May 2006, the State Water Board adopted State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems.

**6. Other Special Provisions**

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

**7. Compliance Schedules**

The use and location of compliances schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria.

- a. The Discharger submitted a request, and justification (dated 10 April 2007), for a compliance schedule for diazinon and gamma-BHC. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP.

According to the Discharger's infeasibility analysis, use of persistent chlorinated hydrocarbon pesticides has been banned, and since January 2005, none have been detected in the Facility effluent. Therefore, the Regional Water Board will require compliance with the final effluent limitation for gamma-BHC, by 18 May 2010.

For diazinon, in accordance with the TMDL included in the Basin Plan, compliance with the final effluent limitations is required by no later than 30 June 2008.

**VIII. PUBLIC PARTICIPATION**

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the City of Yuba Wastewater Treatment Facility. As a step in the WDR adoption process, the

Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

#### **A. Notification of Interested Parties**

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through posting at Yuba City City Hall public notice board, posting at the Facility, and publication in the Appeal Democrat.

#### **B. Written Comments**

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

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 12:00 p.m. (noon) on 1 October 2007.

#### **C. Public Hearing**

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

Date: 25/26 October 2007  
Time: 8:30 am  
Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

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

Please be aware that dates and venues may change. Our Web address is <http://www.waterboards.ca.gov/rwqcb5/> where you can access the current agenda for changes in dates and locations.

#### **D. Waste Discharge Requirements Petitions**

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



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

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**E. Information and Copying**

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling **(916) 464-3921**.

**F. Register of Interested Persons**

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

**G. Additional Information**

Requests for additional information or questions regarding this order should be directed to **Diana Messina** at **(916) 464-4828** or **dcmessina@waterboards.ca.gov**.

**ATTACHMENT G - SUMMARY OF UPSTREAM RECEIVING  
WATER FLOW AND HARDNESS DATA**

<b>Date</b>	<b>Receiving Water Hardness - Upstream (mg/L)</b>	<b>Receiving Water Flow – Upstream (mgd)</b>
30 January 2002	46	2,757
9 December 2002	46	2,512
20 December 2006	42	2,790
24 October 2006	39	2,959
1 November 2006	40	2,971
17 October 2006	38	2,976
16 January 2007	39	3,006
7 November 2006	49	3,008
13 November 2006	52	3,062
21 November 2006	40	3,087
5 December 2006	41	3,121
28 November 2006	41	3,127
8 October 2002	39	3,141
3 January 2007	39	3,195
25 April 2005	44	3,308
14 December 2006	43	3,395
27 October 2005	37	3,396
29 December 2006	39	3,400
10 November 2005	36	3,433
23 November 2005	33	3,438
<b>1 November 2005</b>	<b>32</b>	<b>3,447</b>
30 November 2005	36	3,484
17 November 2005	36	3,493
6 December 2005	39	3,528
10 October 2006	41	3,581
14 December 2005	35	3,611
8 January 2007	38	3,807
25 September 2002	41	3,880
6 July 2006	35	4,327
19 September 2006	34	4,477
8 August 2006	36	4,631
19 December 2005	35	4,676
25 June 2002	34	4,762
17 June 2002	39	5,222
11 March 2002	38	5,720
4 October 2005	37	5,958
26 June 2003	35	6,574
16 February 2006	35	7,202
11 July 2002	34	7,677
24 February 2006	36	8,270
29 May 2003	33	8,743
5 June 2003	34	8,872
8 June 2006	29	9,264
27 January 2006	31	11,536
19 January 2006	34	15,336
7 February 2006	25	16,340
15 March 2006	36	17,535

**ATTACHMENT G - SUMMARY OF UPSTREAM RECEIVING  
WATER FLOW AND HARDNESS DATA**

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<b>Date</b>	<b>Receiving Water Hardness - Upstream (mg/L)</b>	<b>Receiving Water Flow - Upstream (mgd)</b>
12 January 2006	33	18,101
3 February 2006	32	19,688
17 May 2006	28	21,914
7 April 2006	34	46,446
28 December 2005	45	58,566
3 January 2006	23	109,328

**ATTACHMENT H - SUMMARY OF REASONABLE POTENTIAL ANALYSIS**

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	310	1,300	87	750 <sup>(1)</sup>	87 <sup>(2)</sup>	--	--	--	200	Yes
Ammonia	mg/L	45	0.11	0.74	2.14 <sup>(1)</sup>	0.74 <sup>(3)</sup>	--	--	--	--	Yes
Antimony, Total Recoverable	µg/L	0.76	ND	6	--	--	14	4,300	--	6	No
Arsenic	µg/L	8.5	3.3	10	340	150	--	--	--	10	No
Barium	µg/L	43	20	1,000	--	--	--	--	--	1,000	No
Benzene	µg/L	0.52	ND	1	--	--	1.2	71	--	1	No
Bis (2-ethylhexyl) phthalate	µg/L	36	ND	1.8	--	--	1.8	5.9	--	4	Yes
Cadmium	µg/L	0.54	0.29	1.01	1.25	1.01	--	--	--	5	No
Chloride	mg/L	133	2.38	106	860 <sup>(1)</sup>	230 <sup>(2)</sup>	--	--	--	106 <sup>(4)</sup>	Yes
Chloroform	µg/L	18	ND	80	--	1,240 <sup>(5)</sup>	--	--	--	80	No
Chromium III, Total Recoverable	µg/L	12	NA	50	683	81	--	--	--	50	No
Chromium VI	µg/L	1.4	ND	11	16	11	--	--	--	50	No
Cis-1,2-Dichloroethylene	µg/L	0.57	ND	6	--	--	--	--	--	6	No
Copper, Total Recoverable	µg/L	16	6.5	3.52	4.78	3.52	1,300	--	--	1,000	Yes
Cyanide	µg/L	9.4	3.2	5.2	22	5.2	700	220,000	--	150	Yes
2,4-D	µg/L	0.79	ND	70	--	--	--	--	--	70	No
Delta-BHC	µg/L	0.031	ND	500	--	--	--	--	--	500 <sup>(6)</sup>	No
Diazinon	µg/L	0.47	ND	0.05	0.08 <sup>(7)</sup>	0.05 <sup>(8)</sup>	--	--	--	6 <sup>(9)</sup>	Yes
Dibromochloromethane	µg/L	0.88	ND	0.41	--	--	0.41	34	--	80	Yes
1,3-Dichlorobenzene	µg/L	2	ND	400	--	763 <sup>(2)</sup>	400	2,600	--	--	No
1,4-Dichlorobenzene	µg/L	2.3	ND	5	--	763 <sup>(2)</sup>	400	2,600	--	5	No
Dichlorobromomethane	µg/L	4	ND	0.56	--	--	0.56	46	--	80	Yes
Diethyl phthalate	µg/L	3.7	2.2	3	940 <sup>(10)</sup>	3 <sup>(5)</sup>	23,000	120,000	--	--	Yes
Di-n-butyl phthalate	µg/L	2.9	ND	3	940 <sup>(10)</sup>	3 <sup>(5)</sup>	2,700	12,000	--	--	No
Diquat	µg/L	1.1	ND	20	--	--	--	--	--	20	No
Endrin aldehyde	µg/L	0.019	ND	0.76	--	--	0.76	0.81	--	--	No
Fluoride	µg/L	1,060	120	2,000	--	--	--	--	--	2,000	No
Gamma-BHC	µg/L	0.053	ND	0.019	0.95	0.08 <sup>(2)</sup>	0.019	0.063	--	0.2	Yes
Iron	µg/L	380	2,100	300	--	1,000 <sup>(2)</sup>	--	--	--	300	Yes
Iron (Dissolved)	µg/L	300	190	--	--	--	--	--	--	--	No
Lead	µg/L	3.3	1	0.75	19	0.75	--	--	--	15	Yes
Manganese	µg/L	460	83	50	--	--	--	--	--	50	Yes

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Manganese (Dissolved)	µg/L	480	34	--	--	--	--	--	--	--	No
Mercury, Total Recoverable	µg/L	0.021	0.009	0.05	1.4 <sup>(1)</sup>	0.77 <sup>(2)</sup>	0.05	0.051	--	2	No
Methylene blue active substances (MBAS)	µg/L	500	120	500	--	--	--	--	--	500	Yes
Methyl tert-butyl ether	µg/L	1.2	ND	5	--	--	--	--	--	5	No
Molybdenum	µg/L	16	1	10	--	--	--	--	--	10 <sup>(4)</sup>	Yes
Naphthalene	µg/L	0.53	ND	21	--	620 <sup>(2)</sup>	--	--	--	21 <sup>(11)</sup>	No
Nickel, Total Recoverable	µg/L	15	10	20	179	20	610	4,600	--	100	No
Nitrate	µg/L	4,800	1,300	10,000	--	--	--	--	--	10,000	No
Nitrite	µg/L	1,400	3	1,000	--	--	--	--	--	1,000	Yes
4-Nitrophenol	µg/L	1.3	ND	60	230 <sup>(10)</sup>	--	--	--	--	60 <sup>(12)</sup>	No
Phosphorus	µg/L	2,750	ND	0.14	--	--	--	--	--	0.14 <sup>(13)</sup>	Yes
Picloram	µg/L	0.8	0.89	500	--	--	--	--	--	500	No
Selenium	µg/L	1.7	3.3	5	20	5	--	--	--	20	No
Specific Conductance (EC) @ 20 °C	umhos/cm	1,000	112	150	--	--	--	--	150	700 <sup>(4)</sup>	Yes
Silver	µg/L	0.15	ND	0.57	0.57	--	--	--	--	100	No
Sulfate	mg/L	140	5.072	250	--	--	--	--	--	250	No
Sulfide	µg/L	200	ND	--	--	--	--	--	--	--	No
Sulfite	µg/L	140	ND	--	--	--	--	--	--	--	No
TCDD-Equivalents	µg/L	1.78 E-07	1.099 E-07	1.3 E-08	--	--	1.3 E-08	1.4 E-08	--	--	Yes <sup>(14)</sup>
Tetrachloroethylene	µg/L	8	ND	0.8	--	840 <sup>(9)</sup>	0.8	8.85	--	5	Yes
Thallium, Total Recoverable	µg/L	0.31	2.2	1.7	--	--	1.7	6.3	--	2	Yes
Toluene	µg/L	1.3	0.1	150	--	--	6,800	200,000	--	150	No
Total Dissolved Solids	mg/L	500	170	500	--	--	--	--	--	500	Yes
2,4,5-TP (Silvex)	µg/L	0.1	ND	50	--	--	--	--	--	50	No
Trichloroethylene	µg/L	0.15	ND	2.7	--	--	2.7	81	--	5	No
Zinc, Total Recoverable	µg/L	110	5.5	46	46	46	--	--	--	5,000	Yes

General Note: All inorganic concentrations are given as a total recoverable.  
MEC = Maximum Effluent Concentration  
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect  
C = Criterion used for Reasonable Potential Analysis  
CMC = Criterion Maximum Concentration (CTR or NTR)  
CCC = Criterion Continuous Concentration (CTR or NTR)  
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)  
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)  
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective  
MCL = Drinking Water Standards Maximum Contaminant Level  
NA = Not Available  
ND = Non-detect

- Footnotes:
- (1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
  - (2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
  - (3) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
  - (4) Water Quality for Agriculture.
  - (5) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, Chronic Toxicity Information.
  - (6) National Academy of Sciences, Drinking Water Health Advisory, Toxicity Other Than Cancer.
  - (7) California Department of Fish and Game Water Quality Criteria, 1-hour Average.
  - (8) California Department of Fish and Game Water Quality Criteria, 4-day Average.
  - (9) California DHS Action Level for Drinking Water.
  - (10) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, Acute Toxicity Information.
  - (11) Odor Threshold (Amoore and Hautala).
  - (12) USEPA Drinking Water Health Advisory, Toxicity Other Than Cancer.
  - (13) USEPA IRIS Reference Dose for white phosphorous. The Regional Water Board staff are still considering the applicability and relationship of this criterion to total phosphorus.
  - (14) Although there was reasonable potential based on reported values, effluent limitations were not established in this Order. See discussion in Section IV.C.3 of the Fact Sheet.