

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

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**ORDER R5-2017-0085
NPDES NO. CAG585001**

**WASTE DISCHARGE REQUIREMENTS
FOR
MUNICIPAL WASTEWATER DISCHARGERS THAT MEET
OBJECTIVES/CRITERIA AT THE POINT OF DISCHARGE
TO SURFACE WATER**

The following Dischargers are subject to waste discharge requirements (WDR's) as set forth in this General Order upon authorization by a Notice of Applicability:

Table 1. Discharger Information

Dischargers	Owners and operators of municipal wastewater treatment facilities that meet water quality objectives/criteria at the point of discharge to waters of the United States.
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Table 2. Administrative Information

This Order was adopted on:	11 August 2017
This Order shall become effective on:	1 December 2017
This Order shall expire on:	30 November 2022
In accordance with 40 C.F.R. 122.6 and 122.28(b)(2), if the permit is not reissued by the expiration date, the conditions of this General Order will continue in force and effect until a new general order is issued. Only those facilities authorized to discharge under the expiring General Order will remain authorized to discharge under the administratively continued permit conditions, provided they submit a Notice of Intent at least 180 days prior to the expiration date of this General Order, unless the Executive Officer grants permission for a later date (the Notice of Intent cannot be submitted later than the expiration date of this General Order).	
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	< 1 mgd = Minor discharge ≥ 1 mgd = Major discharge

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **11 August 2017**.

Original Signed By:

PAMELA C. CREEDON, Executive Officer

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I. DISCHARGE INFORMATION

A. Eligible Discharges

This General Order applies to owners and operators (hereafter Dischargers) of municipal wastewater treatment facilities that meet water quality objectives/criteria at the point of discharge to surface waters of the United States. These facilities may be publicly owned treatment works (POTW's), as defined at 40 C.F.R. section 403.3, or privately owned treatment works, as defined at 40 C.F.R. section 122.2. This General Order covers major and minor discharges and does not specify eligibility criteria for flow.

The municipal wastewater treatment facilities to be covered by this General Order receive and treat primarily municipal and domestic sewage (i.e., waste and wastewater from humans or household operations), but may also receive and treat septage, commercial and industrial wastewater, storm water, and dry-weather diversions from municipal separate storm sewer (MS4) systems. This General Order does not authorize discharges to surface waters directly from septic tanks or discharges that are comprised solely of non-municipal wastewater (e.g., commercial wastewater, industrial wastewater, or storm water).

This General Order covers municipal wastewater treatment facilities that provide secondary, advanced secondary, or tertiary treatment. Secondary treatment facilities are defined as those meeting the secondary treatment regulations at 40 C.F.R. part 133. Secondary treatment processes generally include a combination of physical and biological treatment to remove biodegradable organics and suspended solids. Advanced secondary facilities provide additional treatment beyond secondary (e.g., filtration). Tertiary facilities are defined as those providing filtration and disinfection equivalent to the levels required by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW) reclamation criteria at California Code of Regulations (CCR), Title 22, division 4, chapter 3, (Title 22). This General Order does not cover discharges that do not receive, at a minimum, secondary treatment (e.g., primary treatment, equivalent-to-secondary treatment).

This General Order covers municipal wastewater treatment facilities that provide disinfection using either chlorine or ultraviolet light (UV), but does not cover facilities that provide disinfection using alternative disinfection methods (e.g., ozonation or pasteurization).

The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP) in section 1.3, *Step 8*, paragraph 2, states that the Central Valley Regional Water Quality Control Board (Central Valley Water Board) may choose to exempt low volume discharges, determined to have no significant adverse impact on water quality, from certain monitoring requirements. Any exemption granted will be included in the Notice of Applicability.

If a Screening Level contained in Attachment C is exceeded and there is no associated effluent limit listed in section V of this General Order, then the discharge is not eligible for coverage under this General Order.

B. Eligibility Criteria

To be authorized by this General Order, all Dischargers of treated municipal wastewater to surface waters of the United States must demonstrate in the Notice of Intent that the discharge or proposed discharge meets the following criteria:

1. If pollutant concentrations in the discharge cause, have a reasonable potential to cause, or contribute to an excursion above any applicable federal water quality criterion established by U.S. EPA pursuant to CWA section 303, then the Discharger must demonstrate the ability to comply with the water quality criterion and associated effluent limitations in section V of this General Order at the point of discharge, without

consideration of dilution credits (i.e., end-of-pipe). A Discharger not currently in compliance with the water quality criterion and associated effluent limitations but under a compliance schedule in this General Order or a separate enforcement order (e.g., Time Schedule Order or Cease and Desist Order) that will enable compliance with the water quality criterion and associated effluent limitations may be enrolled under this General Order.

2. If pollutant concentrations in the discharge cause, have a reasonable potential to cause, or contribute to an excursion above any water quality objective adopted by the Central Valley Water Board or State Water Board, including prohibitions of discharge for the receiving waters, then the Discharger must demonstrate the ability to comply with the water quality objective and associated effluent limitations in section V of this General Permit at the point of discharge, without consideration of dilution credits (i.e., end-of-pipe). A Discharger not currently meeting the water quality objectives and associated effluent limitations but under a compliance schedule in this General Order or a separate enforcement order (e.g., Time Schedule Order or Cease and Desist Order) that will enable compliance with the water quality criterion and associated effluent limitations may be enrolled under this General Order.
3. This Order allows discharges of secondary treated wastewater under the following conditions, unless the Discharger is otherwise required by the Central Valley Water Board to provide tertiary treatment:
 - a. The discharge is to a receiving water with the agricultural supply (AGR) or water contact recreation (REC-1) beneficial use and receives 20:1 dilution at all times, or
 - b. The discharge is to an ephemeral stream with little or no natural flow all or part of the year, there is no nearby habitation, there is limited use of the discharge area, and contact with the effluent is not encouraged.

Eligible Dischargers of secondary treated wastewater must demonstrate that their treatment system provides adequate treatment and disinfection to achieve compliance with the effluent limitations specified in section V.A.1.a.i of this General Order that, based on historical monitoring data, are applicable to the Discharger.

4. This Order allows discharges of tertiary treated wastewater under the following conditions:
 - a. The discharge is to a receiving water with the AGR or REC-1 beneficial use and does not receive 20:1 dilution at all times, or
 - b. The discharge is otherwise required by the Central Valley Water Board to provide tertiary treatment (e.g., where DDW has made a site-specific recommendation that tertiary treatment in addition to 20:1 dilution is necessary or where tertiary treatment has been required to comply with State and federal antidegradation requirements).

Eligible Dischargers of tertiary treated wastewater must demonstrate that their treatment system provides adequate treatment and disinfection to achieve compliance with the effluent limitations specified in section V.A.1.a.ii of this General Order that, based on historical monitoring data, are applicable to the Discharger.

5. This Order includes site-specific limitations for Dischargers that Central Valley Water Board staff has determined to be potentially eligible for coverage under this Order. Dischargers specifically listed in this Order are not guaranteed coverage under this Order and must undergo the formal application and review process to determine individual eligibility. Dischargers with site-specific limitations not contained in this Order may apply for coverage under this Order, but any site-specific limitations, beyond those included in

this Order, must be adopted separately by the Central Valley Water Board before the site-specific limitations can be included in the Notice of Applicability.

II. NOTIFICATION REQUIREMENTS

A. General Order Application

It is the responsibility of the Discharger to obtain coverage under this General Order prior to commencement of any discharge to surface waters of the United States. To obtain coverage under this General Order, which also serves as a National Pollutant Discharge Elimination System (NPDES) permit, applicants must submit a complete Notice of Intent (as described in Attachment B), a minimum of **180 days prior to expiration of their existing NPDES permit** if the discharge has already been permitted, or **180 days prior to a new discharge**, which includes the following:

1. Requirements for All Dischargers

The following must be submitted:

- a. The appropriate first annual fee as required by Title 23 of the CCR, Division 3, Chapter 9, Article 1. The current fee schedule is available at the following website: <http://www.waterboards.ca.gov/resources/fees>. (Checks must be made payable to the State Water Resources Control Board.)
- b. Discharger information listed in section 2 of Attachment B.
- c. A facility description on official letterhead that includes the items listed in section 3 of Attachment B.
- d. Pretreatment program information, if applicable.

2. Additional Requirements for Specific Dischargers

- a. **Low Volume Dischargers.** Low volume Dischargers requesting an exception to priority pollutant sampling requirements in section IX.F of the Monitoring and Reporting Program (Attachment E), as allowed by Section 1.3, Step 8 of the SIP, shall submit a justification that the discharge will have no significant adverse impact on water quality.
- b. **Existing Dischargers.** Dischargers operating under existing individual NPDES permits ("existing Dischargers") may provide additional representative data for the effluent and/or receiving water that they wish to be considered that has not been reported in the California Integrated Water Quality System (CIWQS) during the last 3 years, if available. If an existing Discharger has completed a major upgrade to its existing facility for which representative data is not available from the upgraded facility or the upgrades have not been completed, the Discharger shall provide estimated data for the proposed effluent and receiving water and for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E). The Discharger will be required to sample the effluent and report the analytical results for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E) within 18 months for an upgraded facility that is fully operational at the time of the issuance of the Notice of Applicability or within 21 months following completion of construction of the upgrades to the existing facility. A Discharger desiring coverage under this Order that, as of the Effective Date of this Order, is authorized to discharge under another Central Valley Water Board or State Water Board individual NPDES permit that has not yet expired shall submit a NOI to

the Executive Officer no later than one year prior to the expiration date of its current NPDES permit. This time period may be waived by the Executive Officer.

- c. **New Dischargers.** New Dischargers shall provide either analytical results (if the proposed new discharge is from an operational facility) or estimated data (if the proposed new discharge is from a new facility for which data is not available or for which construction and startup has not been completed) for the proposed effluent and receiving water for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E). If estimated data are provided, the Discharger will be required to sample the effluent and report the analytical results for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E) within 18 months for a new facility that is fully operational at the time of the issuance of the Notice of Applicability or within 21 months following completion of construction of a new facility that is not fully operational at the time of the issuance of the Notice of Applicability.
- d. **New or Increased Discharge.** Dischargers requesting a new discharge or expanding facility capacity beyond their current permitted average dry weather flow shall provide an antidegradation analysis and a feasibility analysis for wastewater disposal, regionalization, and recycled water alternatives.
- e. **UV Disinfection Dischargers.** Dischargers that use UV disinfection shall provide a copy of the site-specific engineering study and DDW approval letter if requesting site-specific UV disinfection system operating specifications in lieu of the specification in Special Provisions VII.C.4.b.i and ii. Dischargers that use UV disinfection shall also provide a description of any continued chlorine use at the facility.

B. General Order Coverage

Upon receipt of a complete Notice of Intent, the Executive Officer shall determine the applicability of the proposed discharge to this General Order. If the discharge is deemed eligible for coverage under this General Order, the Executive Officer will issue a Notice of Applicability to the Discharger. The Notice of Applicability will specify that the discharge is authorized under the terms and conditions of this General Order, when such authorization is effective, and will prescribe effluent limitations and include a monitoring and reporting program. Proposed discharges to surface waters of the United States that are not already covered by an existing individual NPDES permit may not commence until issuance of a Notice of Applicability. If the discharge is not eligible for coverage under this General Order, the Executive Officer will notify the Discharger in writing with instructions on how to proceed.

The Discharger must notify the Central Valley Water Board in writing prior to making any modifications to the facility and/or discharge covered by the Notice of Applicability. Upon receipt of notification from the Discharger regarding any planned modifications to the previously approved discharge, the Central Valley Water Board may request information, such as a modified Notice of Intent and applicable laboratory analyses, in order to determine eligibility of the modified facility and/or discharge for this Order. If applicable, the Executive Officer may issue a modified Notice of Applicability for discharges that continue to qualify for this Order. Discharge may continue during this process. Dischargers that no longer qualify for this Order but wish to continue discharge to surface waters of the United States must immediately apply for an individual NPDES permit.

C. Termination of Coverage

Upon receiving the Notice of Applicability, the Discharger is subject to the terms and conditions of this Order and is responsible for submitting monitoring reports and the annual fee associated with this Order until a written request for official termination of coverage is received. In accordance with 40 C.F.R. section 122.28(b)(3)(iii), any Discharger may request to be excluded from coverage under a general NPDES permit by applying for an individual NPDES permit. This request must provide justification supporting this request for an individual NPDES permit and reasons why coverage under this General Order is not appropriate. Upon receipt of the request and application, the Executive Officer shall determine if an individual NPDES permit should be issued. When the Central Valley Water Board issues an individual NPDES permit and/or WDR's to a Discharger, the applicability of this General Order to that Discharger is automatically terminated on the effective date of the individual NPDES permit or WDR's.

Dischargers shall also request termination of coverage under this General Order when either (a) the facility has ceased operations or (b) the facility's operations have changed and are no longer eligible for coverage under the General Order.

D. General Order Expiration

This General Order will expire five years after the effective date, as specified on the cover page of this General Order. In accordance with 40 C.F.R. sections 122.6 and 122.28(b)(2), if the permit is not reissued by the expiration date, the conditions of this General Order will continue in force and effect until a new general order is adopted. Only those facilities authorized to discharge under this General Order will remain authorized to continue discharge under the administratively continued permit conditions until a new general order is adopted and a new Notice of Applicability is issued by the Executive Officer, or the Discharger is issued an individual NPDES permit or WDR's, provided the Discharger submits a Notice of Intent at least 180 days prior to the expiration date of this General Order, unless the Executive Officer grants permission for a later submittal date. However, under no circumstance shall the Notice of Intent be submitted later than the expiration date of this Order.

III. FINDINGS

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

A. Legal Authorities. This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for municipal wastewater treatment facilities, as described herein, that meet water quality objectives/criteria at the point of discharge to surface waters.

40 C.F.R. section 122.28 authorizes U.S. EPA and approved states to issue general permits to regulate a point source category if the sources:

1. Involve the same or substantially similar types of operations;
2. Discharge the same type of waste;
3. Require the same type of effluent limitations or operating conditions;
4. Require similar monitoring; and
5. Are more appropriately regulated under a general permit rather than individual permits.

On 22 September 1989, U.S. EPA granted the State of California, through the State Water Board and the Regional Water Boards, the authority to issue general NPDES permits pursuant to 40 C.F.R. parts 122 and 123.

- B. Basin Plans.** The Central Valley Water Board adopted a Water Quality Control Plan, Fourth Edition (Revised April 2016), for the Sacramento and San Joaquin River Basins and a Water Quality Control Plan, Second Edition (Revised January 2015 with approved amendments), for the Tulare Lake Basin (hereinafter Basin Plans) that designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters addressed through the plans. Requirements in this Order implement the Basin Plans.
- C. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on readily available information and permit requirements for several similar dischargers in the Central Valley Region. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G are also incorporated into this Order.
- D. Monitoring and Reporting.** 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program, as specified in the Notice of Applicability and in Attachment E, establishes monitoring and reporting requirements to implement federal and State requirements.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), *“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional 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. In requiring those reports, the regional 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.”*

Municipal wastewater treatment facilities that are issued a Notice of Applicability by the Executive Officer are subject to this Order. The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

- E. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. 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 40 C.F.R. section 122.42. The Central Valley Water Board has also included in this Order special provisions applicable to the Dischargers. The rationale for the special provisions contained in this Order is provided in the Fact Sheet.
- F. Notification of Interested Persons.** The Central Valley Water Board has notified potential and existing Dischargers and interested agencies and persons of its intent to prescribe WDR’s

for municipal wastewater treatment facilities that meet water quality objectives/criteria at the point of discharge to surface water and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

- G. Consideration of Public Comment.** The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to this Order. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

IV. DISCHARGE PROHIBITIONS

- A.** The discharge of wastes, other than those described in section I.A and meeting the eligibility criteria in section I.B of this General Order, is prohibited unless the Discharger obtains coverage under another general or individual Order that regulates the discharge of such wastes.
- B.** The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
- C.** Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.
- D.** The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
- E.** The Discharger shall comply with any additional site-specific prohibitions specified in the Notice of Applicability.

V. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The Executive Officer shall indicate the applicable effluent limitations in the Notice of Applicability when a Discharger is enrolled under this General Order. If necessary, effluent limitations for priority pollutants not specifically listed in this section will be determined using the same standard analysis and procedures used to determine the effluent limitations for priority pollutants contained herein and as described in the Fact Sheet (Attachment F).

The effluent limitations specified in sections V.A.1.b, V.A.1.c.v, and V.A.1.c.vi were calculated according to the procedures in section 1.4 of the SIP and vary according to the coefficient of variation (CV) of the effluent data. The CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values. If (a) the number of effluent data points is less than ten, or (b) at least 80 percent of the data are reported as not detected, the CV shall be set equal to 0.6. When calculating the CV using this procedure, if an effluent data point is below the method detection limit (MDL) for the pollutant in that sample, one-half of the MDL shall be used as a value in the calculations.

The constituents, parameters, and pollutants listed in this section and as identified in the Notice of Applicability from the Executive Officer, shall not exceed the effluent limitations below:

A. Effluent Limitations

1. Final Effluent Limitations

a. Secondary and Tertiary Treatment Requirements and Pathogen Removal Requirements

i. Secondary Treatment Requirements

As specified in the Notice of Applicability, Dischargers of secondary treated wastewater that meet the eligibility criteria in section I.B.3 shall not exceed the effluent limitations below:

(a) The Discharger shall maintain compliance with the effluent limitations specified in Table 3:

Table 3. Effluent Limitations – Secondary Treatment Requirements

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	60
	lbs/day	1	1	1
Total Suspended Solids	mg/L	30	45	60
	lbs/day	1	1	1
Settleable Solids	ml/L	0.1	0.2	--

¹ Mass-based effluent limitations shall be established in the Notice of Applicability based on the design average dry weather flow.

(b) **Percent Removal.** The average monthly percent removal of BOD₅ and TSS shall not be less than 85 percent.

(c) **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:

- (1) 23 most probable number (MPN) per 100 mL, as a 7-day median; and
- (2) 240 MPN/100 mL, more than once in any 30-day period.

ii. Tertiary Treatment Requirements

As specified in the Notice of Applicability, Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 shall not exceed the effluent limitations below:

(a) The Discharger shall maintain compliance with the effluent limitations specified in Table 4:

Table 4. Effluent Limitations – Tertiary Treatment Requirements

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20
	lbs/day	1	1	1
Total Suspended Solids	mg/L	10	15	20
	lbs/day	1	1	1

¹ Mass-based effluent limitations shall be established in the Notice of Applicability based on the design average dry weather flow.

(b) **Percent Removal.** The average monthly percent removal of BOD₅ and TSS shall not be less than:

- (1) 85 percent; or
- (2) 90 percent, if 90 percent was specified in the Discharger's most recent individual NPDES permit.

(c) **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:

- (1) 2.2 MPN/100 mL, as a 7-day median;
- (2) 23 MPN/100 mL, more than once in any 30-day period; and
- (3) 240 MPN/100 mL, at any time.

iii. **Flow.** The average dry weather discharge flow shall not exceed the limitations specified in the Notice of Applicability.

b. Water Quality-Based Effluent Limitations for Priority Pollutants of Concern

To determine the priority pollutants requiring effluent limitations, the Central Valley Water Board will conduct a reasonable potential analysis (RPA) using the effluent and ambient background data as discussed in section V.C.2.b of the Fact Sheet (Attachment), the screening levels in Attachment C, and the procedures specified in section 1.3 of the SIP. See Attachment C and section V.C.3.a of the Fact Sheet (Attachment F) for additional information regarding the specific RPA procedures for priority pollutants. For priority pollutants that exhibit reasonable potential to cause or contribute to an exceedance of a water quality criterion/objective, the Executive Officer shall indicate the applicable effluent limitations in the Notice of Applicability.

i. **Applicable to Discharges to Receiving Waters with the Municipal and Domestic Supply (MUN) Beneficial Use.** For discharges to receiving waters with the MUN use, the discharge shall not exceed the priority pollutant effluent limitations identified in the Notice of Applicability from the Executive Officer. Effluent limitations are established based on the coefficient of variation (CV) of the effluent and are included in Tables 5A through 5B below:

Table 5A. Effluent Limitations – Priority Pollutants (Receiving Waters with MUN Use)

CV ¹	Arsenic, Total Recoverable		Bis (2-ethylhexyl) Phthalate		Chloro-dibromomethane		Cyanide, Total (as CN) ⁴		Dichloro-bromomethane	
	AMEL ²	MDEL ³	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
0.1	10	12	1.8	2.1	0.41	0.47	5.0	5.8	0.56	0.65
0.2	10	13	1.8	2.4	0.41	0.54	4.9	6.4	0.56	0.74
0.3	10	15	1.8	2.7	0.41	0.62	4.7	7.0	0.56	0.84
0.4	10	17	1.8	3.0	0.41	0.69	4.5	7.6	0.56	0.94
0.5	10	18	1.8	3.3	0.41	0.76	4.4	8.1	0.56	1.0
0.6	10	20	1.8	3.6	0.41	0.82	4.3	8.5	0.56	1.1
0.7	10	22	1.8	3.9	0.41	0.88	4.1	8.9	0.56	1.2
0.8	10	23	1.8	4.1	0.41	0.94	4.0	9.2	0.56	1.3
0.9	10	24	1.8	4.3	0.41	0.99	3.9	9.4	0.56	1.4
1.0	10	25	1.8	4.5	0.41	1.0	3.8	9.5	0.56	1.4
1.1	10	26	1.8	4.7	0.41	1.1	3.7	9.6	0.56	1.5
1.2	10	27	1.8	4.9	0.41	1.1	3.6	9.6	0.56	1.5
1.3	10	28	1.8	5.0	0.41	1.1	3.5	9.6	0.56	1.6
1.4	10	28	1.8	5.1	0.41	1.2	3.4	9.6	0.56	1.6
1.5	10	29	1.8	5.2	0.41	1.2	3.3	9.5	0.56	1.6
1.6	10	29	1.8	5.3	0.41	1.2	3.2	9.5	0.56	1.6
1.7	10	30	1.8	5.4	0.41	1.2	3.1	9.4	0.56	1.7

CV ¹	Arsenic, Total Recoverable		Bis (2-ethylhexyl) Phthalate		Chloro-dibromomethane		Cyanide, Total (as CN) ⁴		Dichloro-bromomethane	
	AMEL ²	MDEL ³	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
1.8	10	30	1.8	5.4	0.41	1.2	3.1	9.3	0.56	1.7
1.9	10	30	1.8	5.5	0.41	1.2	3.0	9.2	0.56	1.7
2.0	10	31	1.8	5.5	0.41	1.3	2.9	9.1	0.56	1.7
2.1	10	31	1.8	5.6	0.41	1.3	2.9	9.0	0.56	1.7
2.2	10	31	1.8	5.6	0.41	1.3	2.8	8.9	0.56	1.7
2.3	10	31	1.8	5.7	0.41	1.3	2.8	8.8	0.56	1.8
2.4	10	32	1.8	5.7	0.41	1.3	2.7	8.7	0.56	1.8
2.5	10	32	1.8	5.7	0.41	1.3	2.7	8.6	0.56	1.8
2.6	10	32	1.8	5.8	0.41	1.3	2.6	8.5	0.56	1.8
2.7	10	32	1.8	5.8	0.41	1.3	2.6	8.4	0.56	1.8
2.8	10	32	1.8	5.8	0.41	1.3	2.6	8.3	0.56	1.8
2.9	10	32	1.8	5.8	0.41	1.3	2.5	8.2	0.56	1.8
3.0	10	33	1.8	5.9	0.41	1.3	2.5	8.1	0.56	1.8
3.1	10	33	1.8	5.9	0.41	1.3	2.4	8.0	0.56	1.8
3.2	10	33	1.8	5.9	0.41	1.3	2.4	7.9	0.56	1.8
3.3	10	33	1.8	5.9	0.41	1.4	2.4	7.9	0.56	1.8
3.4	10	33	1.8	6.0	0.41	1.4	2.4	7.8	0.56	1.9
3.5	10	33	1.8	6.0	0.41	1.4	2.3	7.7	0.56	1.9
3.6	10	33	1.8	6.0	0.41	1.4	2.3	7.6	0.56	1.9
3.7	10	33	1.8	6.0	0.41	1.4	2.3	7.6	0.56	1.9
3.8	10	34	1.8	6.0	0.41	1.4	2.2	7.5	0.56	1.9
3.9	10	34	1.8	6.1	0.41	1.4	2.2	7.5	0.56	1.9
4.0	10	34	1.8	6.1	0.41	1.4	2.2	7.4	0.56	1.9

- ¹ CV – Coefficient of variation of effluent data.
- ² AMEL – Average monthly effluent limitation in µg/L
- ³ MDEL – Maximum daily effluent limitation in µg/L
- ⁴ Cyanide effluent limitations based on CTR criteria for the protection of aquatic life.

Table 5B. Effluent Limitations – Priority Pollutants (Receiving Waters with MUN Use)

CV	Tetrachloroethylene	
	AMEL	MDEL
0.1	0.80	0.93
0.2	0.80	1.1
0.3	0.80	1.2
0.4	0.80	1.3
0.5	0.80	1.5
0.6	0.80	1.6
0.7	0.80	1.7
0.8	0.80	1.8
0.9	0.80	1.9
1.0	0.80	2.0
1.1	0.80	2.1
1.2	0.80	2.2
1.3	0.80	2.2
1.4	0.80	2.3
1.5	0.80	2.3
1.6	0.80	2.3
1.7	0.80	2.4
1.8	0.80	2.4
1.9	0.80	2.4
2.0	0.80	2.5

CV	Tetrachloroethylene	
	AMEL	MDEL
2.1	0.80	2.5
2.2	0.80	2.5
2.3	0.80	2.5
2.4	0.80	2.5
2.5	0.80	2.5
2.6	0.80	2.6
2.7	0.80	2.6
2.8	0.80	2.6
2.9	0.80	2.6
3.0	0.80	2.6
3.1	0.80	2.6
3.2	0.80	2.6
3.3	0.80	2.6
3.4	0.80	2.6
3.5	0.80	2.7
3.6	0.80	2.7
3.7	0.80	2.7
3.8	0.80	2.7
3.9	0.80	2.7
4.0	0.80	2.7

- ii. **Applicable to Discharges to Receiving Waters without the MUN Use.** For discharges to receiving waters without the MUN use, the priority pollutant effluent limitations, as identified in the Notice of Applicability from the Executive Officer, shall not exceed the effluent limitations in Tables 6A through 6B below:

Table 6A. Effluent Limitations – Priority Pollutants (Receiving Waters without MUN Use)

CV	Arsenic, Total Recoverable		Bis (2-ethylhexyl) Phthalate		Chloro-dibromomethane		Cyanide, Total (as CN)		Dichloro-bromomethane	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
0.1	150	170	5.9	6.8	34	39	5.0	5.8	46	53
0.2	140	190	5.9	7.8	34	45	4.9	6.4	46	61
0.3	140	200	5.9	8.9	34	51	4.7	7.0	46	69
0.4	130	220	5.9	9.9	34	57	4.5	7.6	46	77
0.5	130	230	5.9	11	34	63	4.4	8.1	46	85
0.6	120	250	5.9	12	34	68	4.3	8.5	46	92
0.7	120	260	5.9	13	34	73	4.1	8.9	46	99
0.8	120	260	5.9	14	34	78	4.0	9.2	46	110
0.9	110	270	5.9	14	34	82	3.9	9.4	46	110
1.0	110	270	5.9	15	34	86	3.8	9.5	46	120
1.1	110	280	5.9	15	34	89	3.7	9.6	46	120
1.2	100	280	5.9	16	34	92	3.6	9.6	46	120
1.3	100	280	5.9	16	34	94	3.5	9.6	46	130
1.4	98	280	5.9	17	34	96	3.4	9.6	46	130
1.5	95	280	5.9	17	34	98	3.3	9.5	46	130
1.6	93	270	5.9	17	34	100	3.2	9.5	46	140
1.7	91	270	5.9	18	34	100	3.1	9.4	46	140
1.8	89	270	5.9	18	34	100	3.1	9.3	46	140
1.9	87	270	5.9	18	34	100	3.0	9.2	46	140
2.0	85	260	5.9	18	34	110	2.9	9.1	46	140
2.1	83	260	5.9	18	34	110	2.9	9.0	46	140
2.2	82	260	5.9	18	34	110	2.8	8.9	46	140

CV	Arsenic, Total Recoverable		Bis (2-ethylhexyl) Phthalate		Chloro-dibromomethane		Cyanide, Total (as CN)		Dichloro-bromomethane	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
2.3	80	250	5.9	19	34	110	2.8	8.8	46	150
2.4	79	250	5.9	19	34	110	2.7	8.7	46	150
2.5	77	250	5.9	19	34	110	2.7	8.6	46	150
2.6	76	240	5.9	19	34	110	2.6	8.5	46	150
2.7	75	240	5.9	19	34	110	2.6	8.4	46	150
2.8	74	240	5.9	19	34	110	2.6	8.3	46	150
2.9	73	240	5.9	19	34	110	2.5	8.2	46	150
3.0	72	230	5.9	19	34	110	2.5	8.1	46	150
3.1	71	230	5.9	19	34	110	2.4	8.0	46	150
3.2	70	230	5.9	19	34	110	2.4	7.9	46	150
3.3	69	230	5.9	19	34	110	2.4	7.9	46	150
3.4	68	220	5.9	20	34	110	2.4	7.8	46	150
3.5	67	220	5.9	20	34	110	2.3	7.7	46	150
3.6	66	220	5.9	20	34	110	2.3	7.6	46	150
3.7	65	220	5.9	20	34	110	2.3	7.6	46	150
3.8	65	220	5.9	20	34	110	2.2	7.5	46	150
3.9	64	220	5.9	20	34	110	2.2	7.5	46	160
4.0	63	210	5.9	20	34	120	2.2	7.4	46	160

Table 6B. Effluent Limitations – Priority Pollutants (Receiving Waters without MUN Use)

CV	Tetrachloroethylene	
	AMEL	MDEL
0.1	8.9	10
0.2	8.9	12
0.3	8.9	13
0.4	8.9	15
0.5	8.9	16
0.6	8.9	18
0.7	8.9	19
0.8	8.9	20
0.9	8.9	21
1.0	8.9	22
1.1	8.9	23
1.2	8.9	24
1.3	8.9	25
1.4	8.9	25
1.5	8.9	26
1.6	8.9	26
1.7	8.9	26
1.8	8.9	27
1.9	8.9	27
2.0	8.9	27
2.1	8.9	27
2.2	8.9	28
2.3	8.9	28
2.4	8.9	28
2.5	8.9	28
2.6	8.9	28
2.7	8.9	28
2.8	8.9	29

CV	Tetrachloroethylene	
	AMEL	MDEL
2.9	8.9	29
3.0	8.9	29
3.1	8.9	29
3.2	8.9	29
3.3	8.9	29
3.4	8.9	29
3.5	8.9	29
3.6	8.9	29
3.7	8.9	30
3.8	8.9	30
3.9	8.9	30
4.0	8.9	30

- iii. **Hardness-based Metals.** For discharges to receiving waters not within the legal boundaries of the Sacramento-San Joaquin Delta, the priority pollutant effluent limitations, as identified in the Notice of Applicability from the Executive Officer, shall not exceed the respective effluent limitations contained in Tables 7A through 9F, below. Effluent limitations contained in Tables 7A through 9F for copper, lead, and zinc are based on the appropriate ambient hardness concentration determined in accordance with section V.C.2.e of the Fact Sheet (Attachment F). See section VII.C.1.d for additional information regarding effluent limitations for metals.

For the City of Grass Valley, Wastewater Treatment Plant, the effluent limitations for copper and zinc in Tables 10A through 11F shall apply in lieu of those in Tables 7A through 7F and 9A through 9F.

Table 7A. Effluent Limitations – Copper, Total Recoverable

Hardness (H) in mg/L	0 ≤ H < 5		5 ≤ H < 10		10 ≤ H < 15		15 ≤ H < 20		20 ≤ H < 25	
	CV	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL
0.1	0.37	0.43	0.99	1.1	1.5	1.8	2.0	2.4	2.5	2.9
0.2	0.33	0.43	0.92	1.2	1.5	2.0	2.0	2.6	2.4	3.2
0.3	0.29	0.43	0.81	1.2	1.3	2.0	1.8	2.7	2.3	3.4
0.4	0.26	0.43	0.73	1.2	1.2	2.0	1.6	2.7	2.0	3.4
0.5	0.23	0.43	0.66	1.2	1.1	2.0	1.5	2.7	1.9	3.4
0.6	0.22	0.43	0.61	1.2	0.98	2.0	1.4	2.7	1.7	3.4
0.7	0.20	0.43	0.57	1.2	0.92	2.0	1.3	2.7	1.6	3.4
0.8	0.19	0.43	0.53	1.2	0.86	2.0	1.2	2.7	1.5	3.4
0.9	0.18	0.43	0.51	1.2	0.82	2.0	1.1	2.7	1.4	3.4
1.0	0.17	0.43	0.48	1.2	0.78	2.0	1.1	2.7	1.4	3.4
1.1	0.17	0.43	0.47	1.2	0.75	2.0	1.0	2.7	1.3	3.4
1.2	0.16	0.43	0.45	1.2	0.73	2.0	1.0	2.7	1.3	3.4
1.3	0.16	0.43	0.44	1.2	0.71	2.0	0.98	2.7	1.2	3.4
1.4	0.15	0.43	0.43	1.2	0.70	2.0	0.96	2.7	1.2	3.4
1.5	0.15	0.43	0.42	1.2	0.68	2.0	0.94	2.7	1.2	3.4
1.6	0.15	0.43	0.42	1.2	0.67	2.0	0.92	2.7	1.2	3.4
1.7	0.15	0.43	0.41	1.2	0.66	2.0	0.91	2.7	1.2	3.4
1.8	0.14	0.43	0.40	1.2	0.65	2.0	0.90	2.7	1.1	3.4
1.9	0.14	0.43	0.40	1.2	0.65	2.0	0.89	2.7	1.1	3.4
2.0	0.14	0.43	0.40	1.2	0.64	2.0	0.88	2.7	1.1	3.4
2.1	0.14	0.43	0.39	1.2	0.64	2.0	0.87	2.7	1.1	3.4
2.2	0.14	0.43	0.39	1.2	0.63	2.0	0.87	2.7	1.1	3.4
2.3	0.14	0.43	0.39	1.2	0.63	2.0	0.86	2.7	1.1	3.4
2.4	0.14	0.43	0.39	1.2	0.62	2.0	0.86	2.7	1.1	3.4
2.5	0.14	0.43	0.38	1.2	0.62	2.0	0.85	2.7	1.1	3.4
2.6	0.14	0.43	0.38	1.2	0.62	2.0	0.85	2.7	1.1	3.4
2.7	0.13	0.43	0.38	1.2	0.61	2.0	0.84	2.7	1.1	3.4
2.8	0.13	0.43	0.38	1.2	0.61	2.0	0.84	2.7	1.1	3.4
2.9	0.13	0.43	0.38	1.2	0.61	2.0	0.83	2.7	1.1	3.4
3.0	0.13	0.43	0.37	1.2	0.61	2.0	0.83	2.7	1.1	3.4
3.1	0.13	0.43	0.37	1.2	0.60	2.0	0.83	2.7	1.0	3.4
3.2	0.13	0.43	0.37	1.2	0.60	2.0	0.82	2.7	1.0	3.4
3.3	0.13	0.43	0.37	1.2	0.60	2.0	0.82	2.7	1.0	3.4
3.4	0.13	0.43	0.37	1.2	0.60	2.0	0.82	2.7	1.0	3.4
3.5	0.13	0.43	0.37	1.2	0.59	2.0	0.82	2.7	1.0	3.4
3.6	0.13	0.43	0.37	1.2	0.59	2.0	0.81	2.7	1.0	3.4
3.7	0.13	0.43	0.36	1.2	0.59	2.0	0.81	2.7	1.0	3.4
3.8	0.13	0.43	0.36	1.2	0.59	2.0	0.81	2.7	1.0	3.4
3.9	0.13	0.43	0.36	1.2	0.59	2.0	0.81	2.7	1.0	3.4
4.0	0.13	0.43	0.36	1.2	0.58	2.0	0.80	2.7	1.0	3.4

Table 7B. Effluent Limitations – Copper, Total Recoverable

Hardness (H) in mg/L	25 ≤ H < 30		30 ≤ H < 35		35 ≤ H < 40		40 ≤ H < 45		45 ≤ H < 50	
	AMEL	MDEL								
CV										
0.1	3.0	3.5	3.5	4.0	3.9	4.5	4.3	5.0	4.8	5.5
0.2	2.9	3.8	3.3	4.4	3.8	5.0	4.2	5.6	4.6	6.1
0.3	2.8	4.1	3.2	4.8	3.6	5.5	4.1	6.1	4.5	6.7
0.4	2.5	4.1	2.9	4.9	3.3	5.6	3.7	6.3	4.1	6.9
0.5	2.2	4.1	2.6	4.9	3.0	5.6	3.4	6.3	3.8	6.9
0.6	2.1	4.1	2.4	4.9	2.8	5.6	3.1	6.3	3.5	6.9
0.7	1.9	4.1	2.3	4.9	2.6	5.6	2.9	6.3	3.2	6.9
0.8	1.8	4.1	2.1	4.9	2.4	5.6	2.7	6.3	3.0	6.9
0.9	1.7	4.1	2.0	4.9	2.3	5.6	2.6	6.3	2.9	6.9
1.0	1.6	4.1	1.9	4.9	2.2	5.6	2.5	6.3	2.8	6.9
1.1	1.6	4.1	1.9	4.9	2.1	5.6	2.4	6.3	2.7	6.9
1.2	1.5	4.1	1.8	4.9	2.1	5.6	2.3	6.3	2.6	6.9
1.3	1.5	4.1	1.8	4.9	2.0	5.6	2.3	6.3	2.5	6.9
1.4	1.5	4.1	1.7	4.9	2.0	5.6	2.2	6.3	2.5	6.9
1.5	1.4	4.1	1.7	4.9	1.9	5.6	2.2	6.3	2.4	6.9
1.6	1.4	4.1	1.7	4.9	1.9	5.6	2.1	6.3	2.4	6.9
1.7	1.4	4.1	1.6	4.9	1.9	5.6	2.1	6.3	2.3	6.9
1.8	1.4	4.1	1.6	4.9	1.8	5.6	2.1	6.3	2.3	6.9
1.9	1.4	4.1	1.6	4.9	1.8	5.6	2.1	6.3	2.3	6.9
2.0	1.3	4.1	1.6	4.9	1.8	5.6	2.0	6.3	2.3	6.9
2.1	1.3	4.1	1.6	4.9	1.8	5.6	2.0	6.3	2.2	6.9
2.2	1.3	4.1	1.6	4.9	1.8	5.6	2.0	6.3	2.2	6.9
2.3	1.3	4.1	1.5	4.9	1.8	5.6	2.0	6.3	2.2	6.9
2.4	1.3	4.1	1.5	4.9	1.8	5.6	2.0	6.3	2.2	6.9
2.5	1.3	4.1	1.5	4.9	1.7	5.6	2.0	6.3	2.2	6.9
2.6	1.3	4.1	1.5	4.9	1.7	5.6	2.0	6.3	2.2	6.9
2.7	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.2	6.9
2.8	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
2.9	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.0	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.1	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.2	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.3	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.4	1.3	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.5	1.2	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.6	1.2	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.7	1.2	4.1	1.5	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.8	1.2	4.1	1.4	4.9	1.7	5.6	1.9	6.3	2.1	6.9
3.9	1.2	4.1	1.4	4.9	1.7	5.6	1.9	6.3	2.1	6.9
4.0	1.2	4.1	1.4	4.9	1.6	5.6	1.9	6.3	2.1	6.9

Table 7C. Effluent Limitations – Copper, Total Recoverable

Hardness (H) in mg/L	50 ≤ H < 55		55 ≤ H < 60		60 ≤ H < 65		65 ≤ H < 70		70 ≤ H < 75	
	AMEL	MDEL								
CV										
0.1	5.2	6.0	5.6	6.5	6.0	7.0	6.4	7.5	6.9	7.9
0.2	5.0	6.7	5.4	7.2	5.8	7.7	6.2	8.3	6.6	8.8
0.3	4.9	7.3	5.3	7.9	5.6	8.5	6.0	9.0	6.4	9.6
0.4	4.6	7.6	5.0	8.3	5.4	9.0	5.8	9.7	6.2	10
0.5	4.1	7.6	4.5	8.3	4.9	9.0	5.2	9.7	5.6	10
0.6	3.8	7.6	4.1	8.3	4.5	9.0	4.8	9.7	5.2	10
0.7	3.5	7.6	3.9	8.3	4.2	9.0	4.5	9.7	4.8	10
0.8	3.3	7.6	3.6	8.3	3.9	9.0	4.2	9.7	4.5	10
0.9	3.2	7.6	3.4	8.3	3.7	9.0	4.0	9.7	4.3	10
1.0	3.0	7.6	3.3	8.3	3.6	9.0	3.8	9.7	4.1	10
1.1	2.9	7.6	3.2	8.3	3.4	9.0	3.7	9.7	4.0	10
1.2	2.8	7.6	3.1	8.3	3.3	9.0	3.6	9.7	3.8	10
1.3	2.8	7.6	3.0	8.3	3.2	9.0	3.5	9.7	3.7	10
1.4	2.7	7.6	2.9	8.3	3.2	9.0	3.4	9.7	3.7	10
1.5	2.6	7.6	2.9	8.3	3.1	9.0	3.3	9.7	3.6	10
1.6	2.6	7.6	2.8	8.3	3.1	9.0	3.3	9.7	3.5	10
1.7	2.6	7.6	2.8	8.3	3.0	9.0	3.2	9.7	3.5	10
1.8	2.5	7.6	2.8	8.3	3.0	9.0	3.2	9.7	3.4	10
1.9	2.5	7.6	2.7	8.3	3.0	9.0	3.2	9.7	3.4	10
2.0	2.5	7.6	2.7	8.3	2.9	9.0	3.1	9.7	3.4	10
2.1	2.5	7.6	2.7	8.3	2.9	9.0	3.1	9.7	3.3	10
2.2	2.4	7.6	2.7	8.3	2.9	9.0	3.1	9.7	3.3	10
2.3	2.4	7.6	2.6	8.3	2.9	9.0	3.1	9.7	3.3	10
2.4	2.4	7.6	2.6	8.3	2.8	9.0	3.1	9.7	3.3	10
2.5	2.4	7.6	2.6	8.3	2.8	9.0	3.0	9.7	3.2	10
2.6	2.4	7.6	2.6	8.3	2.8	9.0	3.0	9.7	3.2	10
2.7	2.4	7.6	2.6	8.3	2.8	9.0	3.0	9.7	3.2	10
2.8	2.4	7.6	2.6	8.3	2.8	9.0	3.0	9.7	3.2	10
2.9	2.3	7.6	2.6	8.3	2.8	9.0	3.0	9.7	3.2	10
3.0	2.3	7.6	2.5	8.3	2.8	9.0	3.0	9.7	3.2	10
3.1	2.3	7.6	2.5	8.3	2.7	9.0	3.0	9.7	3.2	10
3.2	2.3	7.6	2.5	8.3	2.7	9.0	2.9	9.7	3.1	10
3.3	2.3	7.6	2.5	8.3	2.7	9.0	2.9	9.7	3.1	10
3.4	2.3	7.6	2.5	8.3	2.7	9.0	2.9	9.7	3.1	10
3.5	2.3	7.6	2.5	8.3	2.7	9.0	2.9	9.7	3.1	10
3.6	2.3	7.6	2.5	8.3	2.7	9.0	2.9	9.7	3.1	10
3.7	2.3	7.6	2.5	8.3	2.7	9.0	2.9	9.7	3.1	10
3.8	2.3	7.6	2.5	8.3	2.7	9.0	2.9	9.6	3.1	10
3.9	2.3	7.6	2.5	8.3	2.7	9.0	2.8	9.6	3.0	10
4.0	2.3	7.6	2.5	8.3	2.6	8.9	2.8	9.5	3.0	10

Table 7D. Effluent Limitations – Copper, Total Recoverable

Hardness (H) in mg/L	75 ≤ H < 80		80 ≤ H < 85		85 ≤ H < 90		90 ≤ H < 95		95 ≤ H < 100	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	7.3	8.4	7.7	8.9	8.0	9.3	8.4	9.8	8.8	10
0.2	7.0	9.3	7.4	9.8	7.8	10	8.2	11	8.5	11
0.3	6.8	10	7.2	11	7.5	11	7.9	12	8.2	12
0.4	6.6	11	6.9	12	7.3	12	7.6	13	8.0	13
0.5	6.0	11	6.3	12	6.7	12	7.1	13	7.4	14
0.6	5.5	11	5.8	12	6.2	12	6.5	13	6.8	14
0.7	5.1	11	5.4	12	5.7	12	6.0	13	6.3	14
0.8	4.8	11	5.1	12	5.4	12	5.7	13	6.0	14
0.9	4.6	11	4.8	12	5.1	12	5.4	13	5.7	14
1.0	4.4	11	4.6	12	4.9	12	5.2	13	5.4	14
1.1	4.2	11	4.5	12	4.7	12	5.0	13	5.2	14
1.2	4.1	11	4.3	12	4.6	12	4.8	13	5.1	14
1.3	4.0	11	4.2	12	4.5	12	4.7	13	4.9	14
1.4	3.9	11	4.1	12	4.4	12	4.6	13	4.8	14
1.5	3.8	11	4.0	12	4.3	12	4.5	13	4.7	14
1.6	3.8	11	4.0	12	4.2	12	4.4	13	4.7	14
1.7	3.7	11	3.9	12	4.1	12	4.4	13	4.6	14
1.8	3.7	11	3.9	12	4.1	12	4.3	13	4.5	14
1.9	3.6	11	3.8	12	4.1	12	4.3	13	4.5	14
2.0	3.6	11	3.8	12	4.0	12	4.2	13	4.4	14
2.1	3.6	11	3.8	12	4.0	12	4.2	13	4.4	14
2.2	3.5	11	3.7	12	4.0	12	4.2	13	4.4	14
2.3	3.5	11	3.7	12	3.9	12	4.1	13	4.3	14
2.4	3.5	11	3.7	12	3.9	12	4.1	13	4.3	14
2.5	3.5	11	3.7	12	3.9	12	4.1	13	4.3	14
2.6	3.4	11	3.6	12	3.9	12	4.1	13	4.3	14
2.7	3.4	11	3.6	12	3.8	12	4.0	13	4.2	14
2.8	3.4	11	3.6	12	3.8	12	4.0	13	4.2	14
2.9	3.4	11	3.6	12	3.8	12	4.0	13	4.2	14
3.0	3.4	11	3.6	12	3.8	12	4.0	13	4.2	14
3.1	3.4	11	3.6	12	3.8	12	4.0	13	4.2	14
3.2	3.4	11	3.6	12	3.8	12	4.0	13	4.2	14
3.3	3.3	11	3.5	12	3.7	12	3.9	13	4.1	14
3.4	3.3	11	3.5	12	3.7	12	3.9	13	4.1	14
3.5	3.3	11	3.5	12	3.7	12	3.9	13	4.1	14
3.6	3.3	11	3.5	12	3.7	12	3.8	13	4.0	13
3.7	3.3	11	3.5	12	3.6	12	3.8	13	4.0	13
3.8	3.2	11	3.4	11	3.6	12	3.8	13	3.9	13
3.9	3.2	11	3.4	11	3.5	12	3.7	13	3.9	13
4.0	3.2	11	3.3	11	3.5	12	3.7	12	3.8	13

Table 7E. Effluent Limitations – Copper, Total Recoverable

Hardness (H) in mg/L	100 ≤ H < 120		120 ≤ H < 140		140 ≤ H < 160		160 ≤ H < 180		180 ≤ H < 200	
	AMEL	MDEL								
CV										
0.1	9.8	11	11	13	13	15	14	16	16	18
0.2	9.5	13	11	14	12	16	14	18	15	20
0.3	9.1	14	11	16	12	18	13	20	15	22
0.4	8.8	15	10	17	12	19	13	21	14	24
0.5	8.3	15	9.7	18	11	21	12	23	14	25
0.6	7.6	15	8.9	18	10	21	12	23	13	26
0.7	7.1	15	8.3	18	9.5	21	11	23	12	26
0.8	6.7	15	7.8	18	9.0	21	10	23	11	26
0.9	6.3	15	7.4	18	8.5	21	9.6	23	11	26
1.0	6.1	15	7.1	18	8.1	21	9.2	23	10	26
1.1	5.9	15	6.9	18	7.8	21	8.8	23	9.8	26
1.2	5.7	15	6.6	18	7.6	21	8.6	23	9.5	26
1.3	5.5	15	6.5	18	7.4	21	8.3	23	9.3	26
1.4	5.4	15	6.3	18	7.2	21	8.1	23	9.0	26
1.5	5.3	15	6.2	18	7.1	21	8.0	23	8.9	26
1.6	5.2	15	6.1	18	7.0	21	7.9	23	8.7	26
1.7	5.1	15	6.0	18	6.9	21	7.8	23	8.6	26
1.8	5.1	15	5.9	18	6.8	21	7.7	23	8.5	26
1.9	5.0	15	5.9	18	6.7	21	7.6	23	8.4	26
2.0	5.0	15	5.8	18	6.7	21	7.5	23	8.3	26
2.1	4.9	15	5.8	18	6.6	21	7.4	23	8.3	26
2.2	4.9	15	5.7	18	6.6	21	7.4	23	8.2	26
2.3	4.9	15	5.7	18	6.5	21	7.3	23	8.1	26
2.4	4.8	15	5.7	18	6.5	21	7.3	23	8.1	26
2.5	4.8	15	5.6	18	6.4	21	7.2	23	8.1	26
2.6	4.8	15	5.6	18	6.4	21	7.2	23	8.0	26
2.7	4.8	15	5.6	18	6.4	21	7.2	23	8.0	26
2.8	4.7	15	5.5	18	6.3	21	7.1	23	7.9	26
2.9	4.7	15	5.5	18	6.3	21	7.1	23	7.8	25
3.0	4.7	15	5.5	18	6.3	21	7.0	23	7.7	25
3.1	4.7	15	5.5	18	6.2	20	6.9	23	7.6	25
3.2	4.7	15	5.4	18	6.1	20	6.8	22	7.5	25
3.3	4.6	15	5.3	18	6.0	20	6.7	22	7.4	24
3.4	4.6	15	5.3	17	6.0	20	6.6	22	7.3	24
3.5	4.5	15	5.2	17	5.9	20	6.6	22	7.2	24
3.6	4.5	15	5.1	17	5.8	19	6.5	22	7.1	24
3.7	4.4	15	5.1	17	5.8	19	6.4	21	7.0	24
3.8	4.4	15	5.0	17	5.7	19	6.3	21	7.0	23
3.9	4.3	15	5.0	17	5.6	19	6.3	21	6.9	23
4.0	4.3	14	4.9	17	5.6	19	6.2	21	6.8	23

Table 7F. Effluent Limitations – Copper, Total Recoverable

Hardness (H) in mg/L	200 ≤ H < 250		250 ≤ H < 300		300 ≤ H < 350		350 ≤ H < 400		H ≥ 400	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	18	21	21	25	25	29	28	32	29	34
0.2	17	23	21	27	24	32	27	36	28	38
0.3	17	25	20	30	23	35	26	39	28	41
0.4	16	27	19	32	22	37	25	42	27	45
0.5	16	29	19	35	22	40	24	45	26	48
0.6	15	30	18	36	21	42	24	47	25	50
0.7	14	30	17	36	20	43	23	49	24	52
0.8	13	30	16	36	19	43	21	49	23	52
0.9	12	30	15	36	18	43	20	49	21	52
1.0	12	30	14	36	17	43	19	49	21	52
1.1	11	30	14	36	16	43	19	49	20	52
1.2	11	30	13	36	16	43	18	49	19	52
1.3	11	30	13	36	15	43	18	49	19	52
1.4	11	30	13	36	15	43	17	49	18	52
1.5	10	30	13	36	15	43	17	49	18	52
1.6	10	30	12	36	14	43	17	49	18	52
1.7	10	30	12	36	14	43	16	49	17	52
1.8	10	30	12	36	14	43	16	49	17	52
1.9	10	30	12	36	14	43	16	49	17	52
2.0	10	30	12	36	14	43	16	49	17	52
2.1	10	30	12	36	14	43	16	49	17	52
2.2	10	30	12	36	14	43	16	49	17	52
2.3	10	30	12	36	14	43	15	49	16	51
2.4	10	30	11	36	13	42	15	48	16	51
2.5	9.4	30	11	36	13	42	15	47	16	50
2.6	9.4	30	11	36	13	42	15	47	15	50
2.7	9.3	30	11	36	13	41	14	46	15	49
2.8	9.2	30	11	35	13	41	14	46	15	48
2.9	9.0	29	11	35	12	40	14	45	15	48
3.0	8.9	29	11	34	12	40	14	45	15	47
3.1	8.8	29	10	34	12	39	14	44	14	47
3.2	8.7	28	10	34	12	39	13	44	14	47
3.3	8.5	28	10	33	12	39	13	44	14	46
3.4	8.4	28	10	33	12	38	13	43	14	46
3.5	8.3	28	10	33	11	38	13	43	14	45
3.6	8.2	27	10	33	11	38	13	42	13	45
3.7	8.1	27	10	32	11	37	13	42	13	44
3.8	8.0	27	10	32	11	37	12	42	13	44
3.9	7.9	27	9.4	32	11	37	12	41	13	44
4.0	7.9	27	9.3	31	11	36	12	41	13	43

Table 8A. Effluent Limitations – Lead, Total Recoverable

Hardness (H) in mg/L	0 ≤ H < 5		5 ≤ H < 10		10 ≤ H < 15		15 ≤ H < 20		20 ≤ H < 25	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	0.028	0.033	0.11	0.13	0.22	0.25	0.33	0.39	0.46	0.53
0.2	0.027	0.036	0.11	0.15	0.21	0.28	0.32	0.43	0.45	0.59
0.3	0.026	0.039	0.11	0.16	0.20	0.31	0.31	0.47	0.43	0.65
0.4	0.025	0.043	0.10	0.17	0.20	0.33	0.30	0.51	0.42	0.70
0.5	0.025	0.045	0.10	0.18	0.19	0.35	0.29	0.54	0.40	0.74
0.6	0.024	0.048	0.10	0.19	0.18	0.37	0.28	0.57	0.39	0.78
0.7	0.023	0.050	0.093	0.20	0.18	0.39	0.27	0.59	0.38	0.81
0.8	0.022	0.051	0.091	0.21	0.17	0.40	0.27	0.61	0.37	0.84
0.9	0.022	0.052	0.088	0.21	0.17	0.41	0.26	0.62	0.36	0.86
1.0	0.021	0.053	0.085	0.21	0.16	0.41	0.25	0.63	0.35	0.87
1.1	0.020	0.054	0.083	0.22	0.16	0.42	0.24	0.64	0.34	0.88
1.2	0.020	0.054	0.081	0.22	0.15	0.42	0.24	0.64	0.33	0.88
1.3	0.019	0.054	0.079	0.22	0.15	0.42	0.23	0.64	0.32	0.88
1.4	0.019	0.054	0.077	0.22	0.15	0.42	0.23	0.64	0.31	0.88
1.5	0.018	0.053	0.075	0.22	0.14	0.41	0.22	0.63	0.30	0.87
1.6	0.018	0.053	0.073	0.21	0.14	0.41	0.21	0.63	0.30	0.87
1.7	0.018	0.052	0.071	0.21	0.14	0.41	0.21	0.62	0.29	0.86
1.8	0.017	0.052	0.070	0.21	0.13	0.40	0.20	0.62	0.28	0.85
1.9	0.017	0.051	0.068	0.21	0.13	0.40	0.20	0.61	0.28	0.84
2.0	0.016	0.051	0.067	0.21	0.13	0.39	0.20	0.60	0.27	0.83
2.1	0.016	0.050	0.065	0.20	0.13	0.39	0.19	0.60	0.26	0.82
2.2	0.016	0.049	0.064	0.20	0.12	0.38	0.19	0.59	0.26	0.81
2.3	0.016	0.049	0.063	0.20	0.12	0.38	0.19	0.58	0.25	0.80
2.4	0.015	0.048	0.062	0.20	0.12	0.38	0.18	0.58	0.25	0.79
2.5	0.015	0.048	0.061	0.19	0.12	0.37	0.18	0.57	0.25	0.78
2.6	0.015	0.047	0.060	0.19	0.11	0.37	0.18	0.56	0.24	0.77
2.7	0.015	0.047	0.059	0.19	0.11	0.36	0.17	0.56	0.24	0.77
2.8	0.014	0.046	0.058	0.19	0.11	0.36	0.17	0.55	0.23	0.76
2.9	0.014	0.046	0.057	0.19	0.11	0.35	0.17	0.54	0.23	0.75
3.0	0.014	0.045	0.056	0.18	0.11	0.35	0.17	0.54	0.23	0.74
3.1	0.014	0.045	0.055	0.18	0.11	0.35	0.16	0.53	0.22	0.73
3.2	0.013	0.044	0.055	0.18	0.10	0.34	0.16	0.53	0.22	0.73
3.3	0.013	0.044	0.054	0.18	0.10	0.34	0.16	0.52	0.22	0.72
3.4	0.013	0.043	0.053	0.18	0.10	0.34	0.16	0.52	0.22	0.71
3.5	0.013	0.043	0.053	0.17	0.10	0.33	0.15	0.51	0.21	0.71
3.6	0.013	0.043	0.052	0.17	0.10	0.33	0.15	0.51	0.21	0.70
3.7	0.013	0.042	0.051	0.17	0.10	0.33	0.15	0.50	0.21	0.69
3.8	0.013	0.042	0.051	0.17	0.10	0.33	0.15	0.50	0.21	0.69
3.9	0.012	0.042	0.050	0.17	0.10	0.32	0.15	0.50	0.20	0.68
4.0	0.012	0.041	0.050	0.17	0.10	0.32	0.15	0.49	0.20	0.68

Table 8B. Effluent Limitations – Lead, Total Recoverable

Hardness (H) in mg/L	25 ≤ H < 30		30 ≤ H < 35		35 ≤ H < 40		40 ≤ H < 45		45 ≤ H < 50	
	AMEL	MDEL								
CV										
0.1	0.59	0.69	0.74	0.85	0.88	1.0	1.0	1.2	1.2	1.4
0.2	0.57	0.76	0.71	0.94	0.85	1.1	1.0	1.3	1.2	1.5
0.3	0.56	0.83	0.69	1.0	0.82	1.2	1.0	1.5	1.1	1.7
0.4	0.54	0.90	0.66	1.1	0.80	1.3	0.94	1.6	1.1	1.8
0.5	0.52	1.0	0.64	1.2	0.77	1.4	0.91	1.7	1.0	1.9
0.6	0.50	1.0	0.62	1.2	0.75	1.5	0.88	1.8	1.0	2.0
0.7	0.49	1.1	0.60	1.3	0.72	1.6	0.85	1.8	1.0	2.1
0.8	0.47	1.1	0.59	1.3	0.70	1.6	0.82	1.9	1.0	2.2
0.9	0.46	1.1	0.57	1.4	0.68	1.6	0.80	1.9	0.92	2.2
1.0	0.45	1.1	0.55	1.4	0.66	1.7	0.78	2.0	0.89	2.3
1.1	0.43	1.1	0.54	1.4	0.64	1.7	0.75	2.0	0.87	2.3
1.2	0.42	1.1	0.52	1.4	0.63	1.7	0.73	2.0	0.85	2.3
1.3	0.41	1.1	0.51	1.4	0.61	1.7	0.71	2.0	0.82	2.3
1.4	0.40	1.1	0.49	1.4	0.59	1.7	0.70	2.0	0.80	2.3
1.5	0.39	1.1	0.48	1.4	0.58	1.7	0.68	2.0	0.78	2.3
1.6	0.38	1.1	0.47	1.4	0.57	1.7	0.66	1.9	0.76	2.2
1.7	0.37	1.1	0.46	1.4	0.55	1.6	0.65	1.9	0.75	2.2
1.8	0.36	1.1	0.45	1.4	0.54	1.6	0.63	1.9	0.73	2.2
1.9	0.36	1.1	0.44	1.3	0.53	1.6	0.62	1.9	0.71	2.2
2.0	0.35	1.1	0.43	1.3	0.52	1.6	0.61	1.9	0.70	2.2
2.1	0.34	1.1	0.42	1.3	0.51	1.6	0.60	1.8	0.69	2.1
2.2	0.34	1.0	0.41	1.3	0.50	1.6	0.58	1.8	0.67	2.1
2.3	0.33	1.0	0.41	1.3	0.49	1.5	0.57	1.8	0.66	2.1
2.4	0.32	1.0	0.40	1.3	0.48	1.5	0.56	1.8	0.65	2.1
2.5	0.32	1.0	0.39	1.3	0.47	1.5	0.55	1.8	0.64	2.0
2.6	0.31	1.0	0.39	1.2	0.46	1.5	0.54	1.7	0.63	2.0
2.7	0.31	1.0	0.38	1.2	0.46	1.5	0.53	1.7	0.62	2.0
2.8	0.30	1.0	0.37	1.2	0.45	1.5	0.53	1.7	0.61	2.0
2.9	0.30	1.0	0.37	1.2	0.44	1.4	0.52	1.7	0.60	1.9
3.0	0.29	1.0	0.36	1.2	0.44	1.4	0.51	1.7	0.59	1.9
3.1	0.29	1.0	0.36	1.2	0.43	1.4	0.50	1.6	0.58	1.9
3.2	0.29	0.94	0.35	1.2	0.42	1.4	0.50	1.6	0.57	1.9
3.3	0.28	0.93	0.35	1.1	0.42	1.4	0.49	1.6	0.56	1.9
3.4	0.28	0.92	0.34	1.1	0.41	1.4	0.48	1.6	0.56	1.8
3.5	0.27	0.91	0.34	1.1	0.41	1.4	0.48	1.6	0.55	1.8
3.6	0.27	0.90	0.34	1.1	0.40	1.3	0.47	1.6	0.54	1.8
3.7	0.27	0.90	0.33	1.1	0.40	1.3	0.47	1.6	0.54	1.8
3.8	0.27	0.89	0.33	1.1	0.39	1.3	0.46	1.5	0.53	1.8
3.9	0.26	0.88	0.32	1.1	0.39	1.3	0.46	1.5	0.53	1.8
4.0	0.26	0.87	0.32	1.1	0.38	1.3	0.45	1.5	0.52	1.8

Table 8C. Effluent Limitations – Lead, Total Recoverable

Hardness (H) in mg/L	50 ≤ H < 55		55 ≤ H < 60		60 ≤ H < 65		65 ≤ H < 70		70 ≤ H < 75	
	AMEL	MDEL								
0.1	1.4	1.6	1.5	1.8	1.7	2.0	1.9	2.2	2.0	2.4
0.2	1.3	1.7	1.5	1.9	1.6	2.2	1.8	2.4	2.0	2.6
0.3	1.3	1.9	1.4	2.1	1.6	2.4	1.7	2.6	1.9	2.9
0.4	1.2	2.1	1.4	2.3	1.5	2.6	1.7	2.8	1.8	3.1
0.5	1.2	2.2	1.3	2.5	1.5	2.7	1.6	3.0	1.8	3.3
0.6	1.1	2.3	1.3	2.6	1.4	2.9	1.6	3.2	1.7	3.5
0.7	1.1	2.4	1.2	2.7	1.4	3.0	1.5	3.3	1.7	3.6
0.8	1.1	2.5	1.2	2.8	1.3	3.1	1.5	3.4	1.6	3.7
0.9	1.0	2.5	1.2	2.8	1.3	3.2	1.4	3.5	1.6	3.8
1.0	1.0	2.6	1.1	2.9	1.3	3.2	1.4	3.5	1.5	3.9
1.1	1.0	2.6	1.1	2.9	1.2	3.2	1.4	3.6	1.5	3.9
1.2	1.0	2.6	1.1	2.9	1.2	3.2	1.3	3.6	1.4	3.9
1.3	0.94	2.6	1.0	2.9	1.2	3.2	1.3	3.6	1.4	3.9
1.4	0.91	2.6	1.0	2.9	1.1	3.2	1.3	3.6	1.4	3.9
1.5	0.89	2.6	1.0	2.9	1.1	3.2	1.2	3.5	1.3	3.9
1.6	0.87	2.5	1.0	2.9	1.1	3.2	1.2	3.5	1.3	3.8
1.7	0.85	2.5	1.0	2.8	1.1	3.2	1.2	3.5	1.3	3.8
1.8	0.83	2.5	0.93	2.8	1.0	3.1	1.1	3.4	1.3	3.8
1.9	0.81	2.5	0.91	2.8	1.0	3.1	1.1	3.4	1.2	3.7
2.0	0.79	2.4	0.89	2.7	1.0	3.1	1.1	3.4	1.2	3.7
2.1	0.78	2.4	0.87	2.7	1.0	3.0	1.1	3.3	1.2	3.6
2.2	0.76	2.4	0.86	2.7	1.0	3.0	1.1	3.3	1.2	3.6
2.3	0.75	2.4	0.84	2.6	0.94	2.9	1.0	3.2	1.1	3.6
2.4	0.74	2.3	0.83	2.6	0.92	2.9	1.0	3.2	1.1	3.5
2.5	0.72	2.3	0.81	2.6	0.90	2.9	1.0	3.2	1.1	3.5
2.6	0.71	2.3	0.80	2.6	0.89	2.8	1.0	3.1	1.1	3.4
2.7	0.70	2.3	0.79	2.5	0.87	2.8	1.0	3.1	1.1	3.4
2.8	0.69	2.2	0.77	2.5	0.86	2.8	1.0	3.1	1.0	3.4
2.9	0.68	2.2	0.76	2.5	0.85	2.8	0.93	3.0	1.0	3.3
3.0	0.67	2.2	0.75	2.4	0.84	2.7	0.92	3.0	1.0	3.3
3.1	0.66	2.2	0.74	2.4	0.82	2.7	0.91	3.0	1.0	3.3
3.2	0.65	2.1	0.73	2.4	0.81	2.7	0.90	2.9	1.0	3.2
3.3	0.64	2.1	0.72	2.4	0.80	2.6	0.88	2.9	1.0	3.2
3.4	0.63	2.1	0.71	2.4	0.79	2.6	0.87	2.9	1.0	3.2
3.5	0.63	2.1	0.70	2.3	0.78	2.6	0.86	2.9	0.94	3.1
3.6	0.62	2.1	0.69	2.3	0.77	2.6	0.85	2.8	0.93	3.1
3.7	0.61	2.0	0.69	2.3	0.76	2.5	0.84	2.8	0.92	3.1
3.8	0.60	2.0	0.68	2.3	0.75	2.5	0.83	2.8	0.91	3.1
3.9	0.60	2.0	0.67	2.3	0.75	2.5	0.82	2.8	0.90	3.0
4.0	0.59	2.0	0.66	2.2	0.74	2.5	0.81	2.7	0.89	3.0

Table 8D. Effluent Limitations – Lead, Total Recoverable

Hardness (H) in mg/L	75 ≤ H < 80		80 ≤ H < 85		85 ≤ H < 90		90 ≤ H < 95		95 ≤ H < 100	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	2.2	2.6	2.4	2.8	2.6	3.0	2.8	3.2	3.0	3.4
0.2	2.1	2.8	2.3	3.1	2.5	3.3	2.7	3.6	2.9	3.8
0.3	2.1	3.1	2.2	3.4	2.4	3.6	2.6	3.9	2.8	4.2
0.4	2.0	3.4	2.2	3.6	2.3	3.9	2.5	4.2	2.7	4.5
0.5	1.9	3.6	2.1	3.9	2.3	4.2	2.4	4.5	2.6	4.8
0.6	1.9	3.8	2.0	4.1	2.2	4.4	2.4	4.7	2.5	5.1
0.7	1.8	3.9	2.0	4.3	2.1	4.6	2.3	4.9	2.4	5.3
0.8	1.8	4.1	1.9	4.4	2.1	4.7	2.2	5.1	2.4	5.4
0.9	1.7	4.1	1.9	4.5	2.0	4.8	2.2	5.2	2.3	5.5
1.0	1.7	4.2	1.8	4.6	1.9	4.9	2.1	5.3	2.2	5.6
1.1	1.6	4.2	1.8	4.6	1.9	4.9	2.0	5.3	2.2	5.7
1.2	1.6	4.3	1.7	4.6	1.8	5.0	2.0	5.3	2.1	5.7
1.3	1.5	4.3	1.7	4.6	1.8	5.0	1.9	5.3	2.1	5.7
1.4	1.5	4.2	1.6	4.6	1.7	4.9	1.9	5.3	2.0	5.7
1.5	1.5	4.2	1.6	4.6	1.7	4.9	1.8	5.3	2.0	5.6
1.6	1.4	4.2	1.5	4.5	1.7	4.9	1.8	5.2	1.9	5.6
1.7	1.4	4.1	1.5	4.5	1.6	4.8	1.7	5.2	1.9	5.5
1.8	1.4	4.1	1.5	4.4	1.6	4.8	1.7	5.1	1.8	5.5
1.9	1.3	4.1	1.4	4.4	1.6	4.7	1.7	5.1	1.8	5.4
2.0	1.3	4.0	1.4	4.3	1.5	4.7	1.6	5.0	1.7	5.4
2.1	1.3	4.0	1.4	4.3	1.5	4.6	1.6	5.0	1.7	5.3
2.2	1.3	3.9	1.4	4.2	1.5	4.6	1.6	4.9	1.7	5.2
2.3	1.2	3.9	1.3	4.2	1.4	4.5	1.5	4.9	1.6	5.2
2.4	1.2	3.8	1.3	4.1	1.4	4.5	1.5	4.8	1.6	5.1
2.5	1.2	3.8	1.3	4.1	1.4	4.4	1.5	4.7	1.6	5.1
2.6	1.2	3.7	1.3	4.0	1.4	4.4	1.5	4.7	1.6	5.0
2.7	1.1	3.7	1.2	4.0	1.3	4.3	1.4	4.6	1.5	5.0
2.8	1.1	3.7	1.2	4.0	1.3	4.3	1.4	4.6	1.5	4.9
2.9	1.1	3.6	1.2	3.9	1.3	4.2	1.4	4.5	1.5	4.8
3.0	1.1	3.6	1.2	3.9	1.3	4.2	1.4	4.5	1.5	4.8
3.1	1.1	3.5	1.2	3.8	1.3	4.1	1.4	4.4	1.5	4.7
3.2	1.1	3.5	1.2	3.8	1.2	4.1	1.3	4.4	1.4	4.7
3.3	1.1	3.5	1.1	3.8	1.2	4.1	1.3	4.4	1.4	4.7
3.4	1.0	3.4	1.1	3.7	1.2	4.0	1.3	4.3	1.4	4.6
3.5	1.0	3.4	1.1	3.7	1.2	4.0	1.3	4.3	1.4	4.6
3.6	1.0	3.4	1.1	3.7	1.2	3.9	1.3	4.2	1.4	4.5
3.7	1.0	3.4	1.1	3.6	1.2	3.9	1.3	4.2	1.3	4.5
3.8	1.0	3.3	1.1	3.6	1.2	3.9	1.2	4.2	1.3	4.5
3.9	1.0	3.3	1.1	3.6	1.1	3.8	1.2	4.1	1.3	4.4
4.0	1.0	3.3	1.0	3.5	1.1	3.8	1.2	4.1	1.3	4.4

Table 8E. Effluent Limitations – Lead, Total Recoverable

Hardness (H) in mg/L	100 ≤ H < 120		120 ≤ H < 140		140 ≤ H < 160		160 ≤ H < 180		180 ≤ H < 200	
	AMEL	MDEL								
CV										
0.1	3.5	4.0	4.3	5.0	5.2	6.0	6.0	7.0	7.0	8.1
0.2	3.4	4.4	4.2	5.5	5.0	6.6	5.8	7.7	6.7	8.9
0.3	3.2	4.9	4.0	6.0	4.8	7.2	5.6	8.5	6.5	10
0.4	3.1	5.3	3.9	6.5	4.7	7.8	5.5	9.1	6.3	11
0.5	3.0	5.6	3.8	6.9	4.5	8.3	5.3	10	6.1	11
0.6	2.9	5.9	3.6	7.3	4.4	8.8	5.1	10	5.9	12
0.7	2.8	6.1	3.5	7.6	4.2	9.1	5.0	11	5.7	12
0.8	2.8	6.3	3.4	7.8	4.1	9.4	4.8	11	5.5	13
0.9	2.7	6.5	3.3	8.0	4.0	10	4.7	11	5.4	13
1.0	2.6	6.6	3.2	8.1	3.9	10	4.5	11	5.2	13
1.1	2.5	6.6	3.1	8.2	3.8	10	4.4	12	5.1	13
1.2	2.5	6.6	3.0	8.2	3.7	10	4.3	12	4.9	13
1.3	2.4	6.6	3.0	8.2	3.6	10	4.2	12	4.8	13
1.4	2.3	6.6	2.9	8.2	3.5	10	4.1	12	4.7	13
1.5	2.3	6.6	2.8	8.1	3.4	10	4.0	11	4.6	13
1.6	2.2	6.5	2.8	8.1	3.3	10	3.9	11	4.5	13
1.7	2.2	6.5	2.7	8.0	3.2	10	3.8	11	4.4	13
1.8	2.1	6.4	2.6	7.9	3.2	10	3.7	11	4.3	13
1.9	2.1	6.3	2.6	7.8	3.1	9.4	3.6	11	4.2	13
2.0	2.0	6.3	2.5	7.7	3.0	9.3	3.5	11	4.1	13
2.1	2.0	6.2	2.5	7.7	3.0	9.2	3.5	11	4.0	12
2.2	2.0	6.1	2.4	7.6	2.9	9.1	3.4	11	3.9	12
2.3	1.9	6.0	2.4	7.5	2.9	9.0	3.3	11	3.9	12
2.4	1.9	6.0	2.3	7.4	2.8	8.9	3.3	10	3.8	12
2.5	1.9	5.9	2.3	7.3	2.8	8.8	3.2	10	3.7	12
2.6	1.8	5.8	2.3	7.2	2.7	8.7	3.2	10	3.7	12
2.7	1.8	5.8	2.2	7.1	2.7	8.6	3.1	10	3.6	12
2.8	1.8	5.7	2.2	7.1	2.6	8.5	3.1	10	3.5	11
2.9	1.7	5.6	2.2	7.0	2.6	8.4	3.0	10	3.5	11
3.0	1.7	5.6	2.1	6.9	2.5	8.3	3.0	10	3.4	11
3.1	1.7	5.5	2.1	6.8	2.5	8.2	2.9	10	3.4	11
3.2	1.7	5.5	2.1	6.8	2.5	8.1	2.9	10	3.3	11
3.3	1.6	5.4	2.0	6.7	2.4	8.1	2.9	9.4	3.3	11
3.4	1.6	5.4	2.0	6.6	2.4	8.0	2.8	9.4	3.3	11
3.5	1.6	5.3	2.0	6.6	2.4	7.9	2.8	9.3	3.2	11
3.6	1.6	5.3	2.0	6.5	2.4	7.8	2.8	9.2	3.2	11
3.7	1.6	5.2	1.9	6.5	2.3	7.8	2.7	9.1	3.1	10
3.8	1.5	5.2	1.9	6.4	2.3	7.7	2.7	9.0	3.1	10
3.9	1.5	5.1	1.9	6.4	2.3	7.6	2.7	9.0	3.1	10
4.0	1.5	5.1	1.9	6.3	2.2	7.6	2.6	8.9	3.0	10

Table 8F. Effluent Limitations – Lead, Total Recoverable

Hardness (H) in mg/L	200 ≤ H < 250		250 ≤ H < 300		300 ≤ H < 350		350 ≤ H < 400		H ≥ 400	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
0.1	8.6	10	11	13	14	16	17	19	18	21
0.2	8.3	11	11	14	13	18	16	21	17	23
0.3	8.1	12	10	16	13	19	15	23	17	25
0.4	7.8	13	10	17	12	21	15	25	16	27
0.5	7.6	14	10	18	12	22	14	27	16	29
0.6	7.3	15	9.4	19	12	23	14	28	15	31
0.7	7.1	15	9.1	20	11	24	14	29	15	32
0.8	6.9	16	8.9	20	11	25	13	30	14	33
0.9	6.7	16	8.6	21	11	26	13	31	14	33
1.0	6.5	16	8.4	21	10	26	12	31	13	34
1.1	6.3	16	8.1	21	10	26	12	32	13	34
1.2	6.1	17	7.9	21	10	26	12	32	13	34
1.3	6.0	17	7.7	21	10	26	11	32	12	34
1.4	5.8	16	7.5	21	9.3	26	11	32	12	34
1.5	5.7	16	7.3	21	9.1	26	11	31	12	34
1.6	5.5	16	7.1	21	8.8	26	11	31	12	34
1.7	5.4	16	7.0	21	8.6	26	10	31	11	33
1.8	5.3	16	6.8	21	8.4	25	10	31	11	33
1.9	5.2	16	6.7	20	8.3	25	10	30	11	33
2.0	5.1	16	6.5	20	8.1	25	10	30	11	32
2.1	5.0	15	6.4	20	7.9	25	10	30	10	32
2.2	4.9	15	6.3	20	7.8	24	9.3	29	10	32
2.3	4.8	15	6.2	19	7.6	24	9.2	29	10	31
2.4	4.7	15	6.1	19	7.5	24	9.0	28	10	31
2.5	4.6	15	6.0	19	7.4	23	8.8	28	10	31
2.6	4.5	15	5.9	19	7.2	23	8.7	28	9.4	30
2.7	4.5	14	5.8	19	7.1	23	8.6	28	9.3	30
2.8	4.4	14	5.7	18	7.0	23	8.4	27	9.1	30
2.9	4.3	14	5.6	18	6.9	22	8.3	27	9.0	29
3.0	4.3	14	5.5	18	6.8	22	8.2	27	8.9	29
3.1	4.2	14	5.4	18	6.7	22	8.1	26	8.7	29
3.2	4.1	14	5.4	18	6.6	22	7.9	26	8.6	28
3.3	4.1	13	5.3	17	6.5	22	7.8	26	8.5	28
3.4	4.0	13	5.2	17	6.5	21	7.7	26	8.4	28
3.5	4.0	13	5.1	17	6.4	21	7.6	25	8.3	28
3.6	3.9	13	5.1	17	6.3	21	7.5	25	8.2	27
3.7	3.9	13	5.0	17	6.2	21	7.5	25	8.1	27
3.8	3.8	13	5.0	17	6.1	21	7.4	25	8.0	27
3.9	3.8	13	4.9	17	6.1	20	7.3	25	7.9	27
4.0	3.8	13	4.9	16	6.0	20	7.2	24	7.8	26

Table 9A. Effluent Limitations – Zinc, Total Recoverable

Hardness (H) in mg/L	0 ≤ H < 5		5 ≤ H < 10		10 ≤ H < 15		15 ≤ H < 20		20 ≤ H < 25	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	4.5	5.3	12	13	18	21	24	27	29	34
0.2	4.0	5.3	10	13	16	21	21	27	26	34
0.3	3.5	5.3	8.9	13	14	21	18	27	23	34
0.4	3.1	5.3	8.0	13	12	21	16	27	20	34
0.5	2.9	5.3	7.2	13	11	21	15	27	18	34
0.6	2.6	5.3	6.7	13	10	21	14	27	17	34
0.7	2.4	5.3	6.2	13	9.5	21	13	27	16	34
0.8	2.3	5.3	5.8	13	9.0	21	12	27	15	34
0.9	2.2	5.3	5.5	13	8.5	21	11	27	14	34
1.0	2.1	5.3	5.3	13	8.2	21	11	27	13	34
1.1	2.0	5.3	5.1	13	7.9	21	10	27	13	34
1.2	2.0	5.3	4.9	13	7.6	21	10	27	13	34
1.3	1.9	5.3	4.8	13	7.4	21	9.9	27	12	34
1.4	1.9	5.3	4.7	13	7.3	21	9.7	27	12	34
1.5	1.8	5.3	4.6	13	7.1	21	9.5	27	12	34
1.6	1.8	5.3	4.5	13	7.0	21	9.3	27	12	34
1.7	1.8	5.3	4.5	13	6.9	21	9.2	27	11	34
1.8	1.7	5.3	4.4	13	6.8	21	9.1	27	11	34
1.9	1.7	5.3	4.4	13	6.8	21	9.0	27	11	34
2.0	1.7	5.3	4.3	13	6.7	21	8.9	27	11	34
2.1	1.7	5.3	4.3	13	6.6	21	8.8	27	11	34
2.2	1.7	5.3	4.3	13	6.6	21	8.8	27	11	34
2.3	1.7	5.3	4.2	13	6.5	21	8.7	27	11	34
2.4	1.7	5.3	4.2	13	6.5	21	8.6	27	11	34
2.5	1.7	5.3	4.2	13	6.5	21	8.6	27	11	34
2.6	1.6	5.3	4.2	13	6.4	21	8.5	27	11	34
2.7	1.6	5.3	4.1	13	6.4	21	8.5	27	11	34
2.8	1.6	5.3	4.1	13	6.4	21	8.5	27	10	34
2.9	1.6	5.3	4.1	13	6.3	21	8.4	27	10	34
3.0	1.6	5.3	4.1	13	6.3	21	8.4	27	10	34
3.1	1.6	5.3	4.1	13	6.3	21	8.4	27	10	34
3.2	1.6	5.3	4.1	13	6.3	21	8.3	27	10	34
3.3	1.6	5.3	4.0	13	6.2	21	8.3	27	10	34
3.4	1.6	5.3	4.0	13	6.2	21	8.3	27	10	34
3.5	1.6	5.3	4.0	13	6.2	21	8.2	27	10	34
3.6	1.6	5.3	4.0	13	6.2	21	8.2	27	10	34
3.7	1.6	5.3	4.0	13	6.2	21	8.2	27	10	34
3.8	1.6	5.3	4.0	13	6.1	21	8.2	27	10	34
3.9	1.6	5.3	4.0	13	6.1	21	8.1	27	10	34
4.0	1.6	5.3	4.0	13	6.1	21	8.1	27	10	34

Table 9B. Effluent Limitations – Zinc, Total Recoverable

Hardness (H) in mg/L	25 ≤ H < 30		30 ≤ H < 35		35 ≤ H < 40		40 ≤ H < 45		45 ≤ H < 50	
	AMEL	MDEL								
CV										
0.1	35	40	40	46	45	52	50	58	55	64
0.2	30	40	35	46	39	52	44	58	48	64
0.3	27	40	31	46	35	52	39	58	43	64
0.4	24	40	28	46	31	52	35	58	38	64
0.5	22	40	25	46	28	52	31	58	35	64
0.6	20	40	23	46	26	52	29	58	32	64
0.7	19	40	21	46	24	52	27	58	30	64
0.8	18	40	20	46	23	52	25	58	28	64
0.9	17	40	19	46	22	52	24	58	26	64
1.0	16	40	18	46	21	52	23	58	25	64
1.1	15	40	18	46	20	52	22	58	24	64
1.2	15	40	17	46	19	52	22	58	24	64
1.3	14	40	17	46	19	52	21	58	23	64
1.4	14	40	16	46	18	52	20	58	23	64
1.5	14	40	16	46	18	52	20	58	22	64
1.6	14	40	16	46	18	52	20	58	22	64
1.7	13	40	16	46	18	52	19	58	21	64
1.8	13	40	15	46	17	52	19	58	21	64
1.9	13	40	15	46	17	52	19	58	21	64
2.0	13	40	15	46	17	52	19	58	21	64
2.1	13	40	15	46	17	52	19	58	21	64
2.2	13	40	15	46	17	52	19	58	20	64
2.3	13	40	15	46	17	52	18	58	20	64
2.4	13	40	15	46	16	52	18	58	20	64
2.5	13	40	15	46	16	52	18	58	20	64
2.6	13	40	14	46	16	52	18	58	20	64
2.7	12	40	14	46	16	52	18	58	20	64
2.8	12	40	14	46	16	52	18	58	20	64
2.9	12	40	14	46	16	52	18	58	20	64
3.0	12	40	14	46	16	52	18	58	20	64
3.1	12	40	14	46	16	52	18	58	19	64
3.2	12	40	14	46	16	52	18	58	19	64
3.3	12	40	14	46	16	52	18	58	19	64
3.4	12	40	14	46	16	52	18	58	19	64
3.5	12	40	14	46	16	52	17	58	19	64
3.6	12	40	14	46	16	52	17	58	19	64
3.7	12	40	14	46	16	52	17	58	19	64
3.8	12	40	14	46	16	52	17	58	19	64
3.9	12	40	14	46	16	52	17	58	19	64
4.0	12	40	14	46	15	52	17	58	19	64

Table 9C. Effluent Limitations – Zinc, Total Recoverable

Hardness (H) in mg/L	50 ≤ H < 55		55 ≤ H < 60		60 ≤ H < 65		65 ≤ H < 70		70 ≤ H < 75	
	AMEL	MDEL								
CV										
0.1	60	69	65	75	70	80	74	86	79	91
0.2	52	69	57	75	61	80	65	86	69	91
0.3	46	69	50	75	54	80	57	86	61	91
0.4	41	69	45	75	48	80	51	86	54	91
0.5	38	69	41	75	44	80	47	86	49	91
0.6	35	69	37	75	40	80	43	86	45	91
0.7	32	69	35	75	37	80	40	86	42	91
0.8	30	69	33	75	35	80	37	86	40	91
0.9	29	69	31	75	33	80	36	86	38	91
1.0	28	69	30	75	32	80	34	86	36	91
1.1	27	69	29	75	31	80	33	86	35	91
1.2	26	69	28	75	30	80	32	86	34	91
1.3	25	69	27	75	29	80	31	86	33	91
1.4	25	69	26	75	28	80	30	86	32	91
1.5	24	69	26	75	28	80	30	86	32	91
1.6	24	69	26	75	27	80	29	86	31	91
1.7	23	69	25	75	27	80	29	86	31	91
1.8	23	69	25	75	27	80	29	86	30	91
1.9	23	69	25	75	26	80	28	86	30	91
2.0	23	69	24	75	26	80	28	86	30	91
2.1	22	69	24	75	26	80	28	86	29	91
2.2	22	69	24	75	26	80	27	86	29	91
2.3	22	69	24	75	26	80	27	86	29	91
2.4	22	69	24	75	25	80	27	86	29	91
2.5	22	69	24	75	25	80	27	86	29	91
2.6	22	69	23	75	25	80	27	86	29	91
2.7	22	69	23	75	25	80	27	86	28	91
2.8	21	69	23	75	25	80	27	86	28	91
2.9	21	69	23	75	25	80	26	86	28	91
3.0	21	69	23	75	25	80	26	86	28	91
3.1	21	69	23	75	25	80	26	86	28	91
3.2	21	69	23	75	24	80	26	86	28	91
3.3	21	69	23	75	24	80	26	86	28	91
3.4	21	69	23	75	24	80	26	86	28	91
3.5	21	69	23	75	24	80	26	86	27	91
3.6	21	69	22	75	24	80	26	86	27	91
3.7	21	69	22	75	24	80	26	86	27	91
3.8	21	69	22	75	24	80	26	86	27	91
3.9	21	69	22	75	24	80	26	86	27	91
4.0	21	69	22	75	24	80	25	86	27	91

Table 9D. Effluent Limitations – Zinc, Total Recoverable

Hardness (H) in mg/L	75 ≤ H < 80		80 ≤ H < 85		85 ≤ H < 90		90 ≤ H < 95		95 ≤ H < 100	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	83	97	88	100	92	110	97	110	100	120
0.2	73	97	77	100	81	110	85	110	88	120
0.3	64	97	68	100	71	110	75	110	78	120
0.4	58	97	61	100	64	110	67	110	70	120
0.5	52	97	55	100	58	110	61	110	64	120
0.6	48	97	51	100	53	110	56	110	58	120
0.7	45	97	47	100	50	110	52	110	54	120
0.8	42	97	44	100	47	110	49	110	51	120
0.9	40	97	42	100	44	110	46	110	49	120
1.0	38	97	40	100	42	110	44	110	47	120
1.1	37	97	39	100	41	110	43	110	45	120
1.2	36	97	38	100	40	110	42	110	43	120
1.3	35	97	37	100	39	110	40	110	42	120
1.4	34	97	36	100	38	110	40	110	41	120
1.5	33	97	35	100	37	110	39	110	41	120
1.6	33	97	35	100	36	110	38	110	40	120
1.7	32	97	34	100	36	110	38	110	39	120
1.8	32	97	34	100	36	110	37	110	39	120
1.9	32	97	33	100	35	110	37	110	39	120
2.0	31	97	33	100	35	110	36	110	38	120
2.1	31	97	33	100	35	110	36	110	38	120
2.2	31	97	33	100	34	110	36	110	38	120
2.3	31	97	32	100	34	110	36	110	37	120
2.4	30	97	32	100	34	110	35	110	37	120
2.5	30	97	32	100	34	110	35	110	37	120
2.6	30	97	32	100	33	110	35	110	37	120
2.7	30	97	32	100	33	110	35	110	36	120
2.8	30	97	31	100	33	110	35	110	36	120
2.9	30	97	31	100	33	110	35	110	36	120
3.0	30	97	31	100	33	110	34	110	36	120
3.1	29	97	31	100	33	110	34	110	36	120
3.2	29	97	31	100	33	110	34	110	36	120
3.3	29	97	31	100	32	110	34	110	36	120
3.4	29	97	31	100	32	110	34	110	35	120
3.5	29	97	31	100	32	110	34	110	35	120
3.6	29	97	31	100	32	110	34	110	35	120
3.7	29	97	30	100	32	110	34	110	35	120
3.8	29	97	30	100	32	110	33	110	35	120
3.9	29	97	30	100	32	110	33	110	35	120
4.0	29	97	30	100	32	110	33	110	35	120

Table 9E. Effluent Limitations – Zinc, Total Recoverable

Hardness (H) in mg/L	100 ≤ H < 120		120 ≤ H < 140		140 ≤ H < 160		160 ≤ H < 180		180 ≤ H < 200	
	AMEL	MDEL								
CV										
0.1	110	130	130	150	150	170	160	190	180	210
0.2	98	130	110	150	130	170	140	190	160	210
0.3	87	130	100	150	110	170	130	190	140	210
0.4	78	130	89	150	100	170	110	190	120	210
0.5	70	130	81	150	92	170	100	190	110	210
0.6	65	130	75	150	84	170	94	190	100	210
0.7	60	130	69	150	78	170	87	190	96	210
0.8	57	130	65	150	74	170	82	190	90	210
0.9	54	130	62	150	70	170	78	190	86	210
1.0	52	130	59	150	67	170	75	190	82	210
1.1	50	130	57	150	65	170	72	190	79	210
1.2	48	130	55	150	63	170	70	190	77	210
1.3	47	130	54	150	61	170	68	190	75	210
1.4	46	130	53	150	60	170	66	190	73	210
1.5	45	130	52	150	59	170	65	190	71	210
1.6	44	130	51	150	58	170	64	190	70	210
1.7	44	130	50	150	57	170	63	190	69	210
1.8	43	130	50	150	56	170	62	190	69	210
1.9	43	130	49	150	55	170	62	190	68	210
2.0	42	130	49	150	55	170	61	190	67	210
2.1	42	130	48	150	54	170	61	190	67	210
2.2	42	130	48	150	54	170	60	190	66	210
2.3	41	130	48	150	54	170	60	190	66	210
2.4	41	130	47	150	53	170	59	190	65	210
2.5	41	130	47	150	53	170	59	190	65	210
2.6	41	130	47	150	53	170	59	190	64	210
2.7	40	130	47	150	53	170	58	190	64	210
2.8	40	130	46	150	52	170	58	190	64	210
2.9	40	130	46	150	52	170	58	190	64	210
3.0	40	130	46	150	52	170	58	190	63	210
3.1	40	130	46	150	52	170	57	190	63	210
3.2	40	130	46	150	51	170	57	190	63	210
3.3	39	130	45	150	51	170	57	190	63	210
3.4	39	130	45	150	51	170	57	190	62	210
3.5	39	130	45	150	51	170	57	190	62	210
3.6	39	130	45	150	51	170	56	190	62	210
3.7	39	130	45	150	51	170	56	190	62	210
3.8	39	130	45	150	50	170	56	190	62	210
3.9	39	130	44	150	50	170	56	190	61	210
4.0	38	130	44	150	50	170	56	190	61	210

Table 9F. Effluent Limitations – Zinc, Total Recoverable

Hardness (H) in mg/L	200 ≤ H < 250		250 ≤ H < 300		300 ≤ H < 350		350 ≤ H < 400		H ≥ 400	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	210	240	240	280	280	330	320	370	340	390
0.2	180	240	210	280	250	330	280	370	290	390
0.3	160	240	190	280	220	330	240	370	260	390
0.4	140	240	170	280	190	330	220	370	230	390
0.5	130	240	150	280	180	330	200	370	210	390
0.6	120	240	140	280	160	330	180	370	190	390
0.7	110	240	130	280	150	330	170	370	180	390
0.8	100	240	120	280	140	330	160	370	170	390
0.9	99	240	120	280	130	330	150	370	160	390
1.0	95	240	110	280	130	330	150	370	150	390
1.1	91	240	110	280	120	330	140	370	150	390
1.2	88	240	100	280	120	330	140	370	140	390
1.3	86	240	100	280	120	330	130	370	140	390
1.4	84	240	100	280	110	330	130	370	140	390
1.5	83	240	98	280	110	330	130	370	130	390
1.6	81	240	96	280	110	330	130	370	130	390
1.7	80	240	95	280	110	330	120	370	130	390
1.8	79	240	94	280	110	330	120	370	130	390
1.9	78	240	93	280	110	330	120	370	130	390
2.0	77	240	92	280	110	330	120	370	130	390
2.1	77	240	91	280	100	330	120	370	130	390
2.2	76	240	90	280	100	330	120	370	120	390
2.3	76	240	90	280	100	330	120	370	120	390
2.4	75	240	89	280	100	330	120	370	120	390
2.5	75	240	89	280	100	330	120	370	120	390
2.6	74	240	88	280	100	330	110	370	120	390
2.7	74	240	88	280	100	330	110	370	120	390
2.8	74	240	87	280	100	330	110	370	120	390
2.9	73	240	87	280	100	330	110	370	120	390
3.0	73	240	87	280	100	330	110	370	120	390
3.1	73	240	86	280	99	330	110	370	120	390
3.2	72	240	86	280	99	330	110	370	120	390
3.3	72	240	86	280	99	330	110	370	120	390
3.4	72	240	85	280	98	330	110	370	120	390
3.5	72	240	85	280	98	330	110	370	120	390
3.6	71	240	85	280	98	330	110	370	120	390
3.7	71	240	84	280	97	330	110	370	120	390
3.8	71	240	84	280	97	330	110	370	120	390
3.9	71	240	84	280	97	330	110	370	120	390
4.0	71	240	84	280	96	330	110	370	110	390

Table 10A. Effluent Limitations – Copper, Total Recoverable for City of Grass Valley, Wastewater Treatment Plant

Hardness (H) in mg/L	0 ≤ H < 5		5 ≤ H < 10		10 ≤ H < 15		15 ≤ H < 20		20 ≤ H < 25	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	2.4	2.8	6.9	8.0	11	13	15	17	19	22
0.2	2.1	2.8	6.0	8.0	9.7	13	13	18	17	22
0.3	1.9	2.8	5.3	8.0	8.6	13	12	18	15	22
0.4	1.7	2.8	4.8	8.0	7.7	13	11	18	13	22
0.5	1.5	2.8	4.3	8.0	7.0	13	9.6	18	12	22
0.6	1.4	2.8	4.0	8.0	6.4	13	8.8	18	11	22
0.7	1.3	2.8	3.7	8.0	6.0	13	8.2	18	10	22
0.8	1.2	2.8	3.5	8.0	5.6	13	7.7	18	9.8	22
0.9	1.2	2.8	3.3	8.0	5.4	13	7.3	18	9.3	22
1.0	1.1	2.8	3.2	8.0	5.1	13	7.0	18	8.9	22
1.1	1.1	2.8	3.1	8.0	4.9	13	6.8	18	8.6	22
1.2	1.1	2.8	3.0	8.0	4.8	13	6.6	18	8.3	22
1.3	1.0	2.8	2.9	8.0	4.7	13	6.4	18	8.1	22
1.4	1.0	2.8	2.8	8.0	4.6	13	6.3	18	7.9	22
1.5	0.98	2.8	2.8	8.0	4.5	13	6.1	18	7.8	22
1.6	0.97	2.8	2.7	8.0	4.4	13	6.0	18	7.7	22
1.7	0.95	2.8	2.7	8.0	4.3	13	6.0	18	7.5	22
1.8	0.94	2.8	2.6	8.0	4.3	13	5.9	18	7.5	22
1.9	0.93	2.8	2.6	8.0	4.2	13	5.8	18	7.4	22
2.0	0.92	2.8	2.6	8.0	4.2	13	5.8	18	7.3	22
2.1	0.91	2.8	2.6	8.0	4.2	13	5.7	18	7.2	22
2.2	0.91	2.8	2.6	8.0	4.1	13	5.7	18	7.2	22
2.3	0.90	2.8	2.5	8.0	4.1	13	5.6	18	7.1	22
2.4	0.90	2.8	2.5	8.0	4.1	13	5.6	18	7.1	22
2.5	0.89	2.8	2.5	8.0	4.1	13	5.6	18	7.1	22
2.6	0.89	2.8	2.5	8.0	4.0	13	5.5	18	7.0	22
2.7	0.88	2.8	2.5	8.0	4.0	13	5.5	18	7.0	22
2.8	0.88	2.8	2.5	8.0	4.0	13	5.5	18	6.9	22
2.9	0.87	2.8	2.5	8.0	4.0	13	5.5	18	6.9	22
3.0	0.87	2.8	2.4	8.0	4.0	13	5.4	18	6.9	22
3.1	0.87	2.8	2.4	8.0	3.9	13	5.4	18	6.9	22
3.2	0.86	2.8	2.4	8.0	3.9	13	5.4	18	6.8	22
3.3	0.86	2.8	2.4	8.0	3.9	13	5.4	18	6.8	22
3.4	0.86	2.8	2.4	8.0	3.9	13	5.4	18	6.8	22
3.5	0.85	2.8	2.4	8.0	3.9	13	5.3	18	6.8	22
3.6	0.85	2.8	2.4	8.0	3.9	13	5.3	18	6.7	22
3.7	0.85	2.8	2.4	8.0	3.9	13	5.3	18	6.7	22
3.8	0.84	2.8	2.4	8.0	3.8	13	5.3	18	6.7	22
3.9	0.84	2.8	2.4	8.0	3.8	13	5.3	18	6.7	22
4.0	0.84	2.8	2.4	8.0	3.8	13	5.3	18	6.7	22

Table 10B. Effluent Limitations – Copper, Total Recoverable for City of Grass Valley, Wastewater Treatment Plant

Hardness (H) in mg/L	25 ≤ H < 30		30 ≤ H < 35		35 ≤ H < 40		40 ≤ H < 45		45 ≤ H < 50	
	AMEL	MDEL								
CV										
0.1	22	26	26	30	29	33	32	37	35	41
0.2	20	27	24	32	27	36	31	41	34	45
0.3	18	27	21	32	24	36	27	41	30	45
0.4	16	27	19	32	22	36	24	41	27	45
0.5	15	27	17	32	20	36	22	41	25	45
0.6	14	27	16	32	18	36	20	41	23	45
0.7	13	27	15	32	17	36	19	41	21	45
0.8	12	27	14	32	16	36	18	41	20	45
0.9	11	27	13	32	15	36	17	41	19	45
1.0	11	27	13	32	14	36	16	41	18	45
1.1	10	27	12	32	14	36	16	41	17	45
1.2	10	27	12	32	13	36	15	41	17	45
1.3	9.8	27	11	32	13	36	15	41	16	45
1.4	9.6	27	11	32	13	36	14	41	16	45
1.5	9.4	27	11	32	13	36	14	41	16	45
1.6	9.2	27	11	32	12	36	14	41	15	45
1.7	9.1	27	11	32	12	36	14	41	15	45
1.8	9.0	27	11	32	12	36	14	41	15	45
1.9	8.9	27	10	32	12	36	13	41	15	45
2.0	8.8	27	10	32	12	36	13	41	15	45
2.1	8.8	27	10	32	12	36	13	41	15	45
2.2	8.7	27	10	32	12	36	13	41	15	45
2.3	8.6	27	10	32	12	36	13	41	14	45
2.4	8.6	27	10	32	11	36	13	41	14	45
2.5	8.5	27	10	32	11	36	13	41	14	45
2.6	8.5	27	9.9	32	11	36	13	41	14	45
2.7	8.4	27	9.9	32	11	36	13	41	14	45
2.8	8.4	27	9.8	32	11	36	13	41	14	45
2.9	8.4	27	9.8	32	11	36	13	41	14	45
3.0	8.3	27	9.7	32	11	36	13	41	14	45
3.1	8.3	27	9.7	32	11	36	12	41	14	45
3.2	8.3	27	9.7	32	11	36	12	41	14	45
3.3	8.2	27	9.6	32	11	36	12	41	14	45
3.4	8.2	27	9.6	32	11	36	12	41	14	45
3.5	8.2	27	9.6	32	11	36	12	41	14	45
3.6	8.1	27	9.5	32	11	36	12	41	14	45
3.7	8.1	27	9.5	32	11	36	12	41	14	45
3.8	8.1	27	9.5	32	11	36	12	41	14	45
3.9	8.1	27	9.4	32	11	36	12	41	13	45
4.0	8.0	27	9.4	32	11	36	12	41	13	45

Table 10C. Effluent Limitations – Copper, Total Recoverable for City of Grass Valley, Wastewater Treatment Plant

Hardness (H) in mg/L	50 ≤ H < 55		55 ≤ H < 60		60 ≤ H < 65		65 ≤ H < 70		70 ≤ H < 75	
	AMEL	MDEL								
CV										
0.1	39	45	42	48	45	52	48	55	51	59
0.2	37	49	40	53	43	57	46	61	49	65
0.3	33	50	36	54	39	59	42	63	45	68
0.4	30	50	32	54	35	59	38	63	40	68
0.5	27	50	29	54	32	59	34	63	37	68
0.6	25	50	27	54	29	59	32	63	34	68
0.7	23	50	25	54	27	59	29	63	31	68
0.8	22	50	24	54	26	59	28	63	30	68
0.9	21	50	23	54	24	59	26	63	28	68
1.0	20	50	22	54	23	59	25	63	27	68
1.1	19	50	21	54	22	59	24	63	26	68
1.2	18	50	20	54	22	59	23	63	25	68
1.3	18	50	20	54	21	59	23	63	24	68
1.4	18	50	19	54	21	59	22	63	24	68
1.5	17	50	19	54	20	59	22	63	23	68
1.6	17	50	19	54	20	59	22	63	23	68
1.7	17	50	18	54	20	59	21	63	23	68
1.8	17	50	18	54	20	59	21	63	22	68
1.9	16	50	18	54	19	59	21	63	22	68
2.0	16	50	18	54	19	59	21	63	22	68
2.1	16	50	18	54	19	59	20	63	22	68
2.2	16	50	17	54	19	59	20	63	22	68
2.3	16	50	17	54	19	59	20	63	22	68
2.4	16	50	17	54	19	59	20	63	21	68
2.5	16	50	17	54	18	59	20	63	21	68
2.6	16	50	17	54	18	59	20	63	21	68
2.7	16	50	17	54	18	59	20	63	21	68
2.8	15	50	17	54	18	59	20	63	21	68
2.9	15	50	17	54	18	59	19	63	21	68
3.0	15	50	17	54	18	59	19	63	21	68
3.1	15	50	17	54	18	59	19	63	21	68
3.2	15	50	17	54	18	59	19	63	21	68
3.3	15	50	16	54	18	59	19	63	21	68
3.4	15	50	16	54	18	59	19	63	20	68
3.5	15	50	16	54	18	59	19	63	20	68
3.6	15	50	16	54	18	59	19	63	20	68
3.7	15	50	16	54	18	59	19	63	20	68
3.8	15	50	16	54	18	59	19	63	20	68
3.9	15	50	16	54	17	59	19	63	20	68
4.0	15	50	16	54	17	59	19	63	20	68

Table 10D. Effluent Limitations – Copper, Total Recoverable for City of Grass Valley, Wastewater Treatment Plant

Hardness (H) in mg/L	75 ≤ H < 80		80 ≤ H < 85		85 ≤ H < 90		90 ≤ H < 95		95 ≤ H < 100	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	54	62	57	66	60	69	63	72	65	76
0.2	52	69	55	73	58	76	60	80	63	84
0.3	48	72	51	76	54	81	57	85	60	89
0.4	43	72	46	76	48	81	51	85	53	89
0.5	39	72	41	76	44	81	46	85	48	89
0.6	36	72	38	76	40	81	42	85	45	89
0.7	33	72	35	76	37	81	39	85	41	89
0.8	31	72	33	76	35	81	37	85	39	89
0.9	30	72	32	76	33	81	35	85	37	89
1.0	29	72	30	76	32	81	34	85	35	89
1.1	28	72	29	76	31	81	33	85	34	89
1.2	27	72	28	76	30	81	32	85	33	89
1.3	26	72	28	76	29	81	31	85	32	89
1.4	25	72	27	76	29	81	30	85	32	89
1.5	25	72	26	76	28	81	29	85	31	89
1.6	25	72	26	76	28	81	29	85	30	89
1.7	24	72	26	76	27	81	29	85	30	89
1.8	24	72	25	76	27	81	28	85	30	89
1.9	24	72	25	76	27	81	28	85	29	89
2.0	23	72	25	76	26	81	28	85	29	89
2.1	23	72	25	76	26	81	27	85	29	89
2.2	23	72	24	76	26	81	27	85	29	89
2.3	23	72	24	76	26	81	27	85	28	89
2.4	23	72	24	76	26	81	27	85	28	89
2.5	23	72	24	76	25	81	27	85	28	89
2.6	23	72	24	76	25	81	27	85	28	89
2.7	22	72	24	76	25	81	26	85	28	89
2.8	22	72	24	76	25	81	26	85	28	89
2.9	22	72	24	76	25	81	26	85	28	89
3.0	22	72	23	76	25	81	26	85	27	89
3.1	22	72	23	76	25	81	26	85	27	89
3.2	22	72	23	76	25	81	26	85	27	89
3.3	22	72	23	76	24	81	26	85	27	89
3.4	22	72	23	76	24	81	26	85	27	89
3.5	22	72	23	76	24	81	26	85	27	89
3.6	22	72	23	76	24	81	26	85	27	89
3.7	22	72	23	76	24	81	25	85	27	89
3.8	21	72	23	76	24	81	25	85	27	89
3.9	21	72	23	76	24	81	25	85	27	89
4.0	21	72	23	76	24	81	25	85	26	89

Table 10E. Effluent Limitations – Copper, Total Recoverable for City of Grass Valley, Wastewater Treatment Plant

Hardness (H) in mg/L	100 ≤ H < 120		120 ≤ H < 140		140 ≤ H < 160		160 ≤ H < 180		180 ≤ H < 200	
	AMEL	MDEL								
CV										
0.1	73	84	84	97	95	110	110	120	120	130
0.2	70	93	81	110	91	120	100	130	110	150
0.3	67	100	78	120	88	130	98	150	110	160
0.4	60	100	70	120	80	130	90	150	100	170
0.5	54	100	64	120	73	130	82	150	91	170
0.6	50	100	58	120	67	130	75	150	84	170
0.7	46	100	54	120	62	130	70	150	78	170
0.8	44	100	51	120	59	130	66	150	73	170
0.9	42	100	49	120	56	130	63	150	69	170
1.0	40	100	47	120	53	130	60	150	67	170
1.1	38	100	45	120	51	130	58	150	64	170
1.2	37	100	43	120	50	130	56	150	62	170
1.3	36	100	42	120	48	130	55	150	61	170
1.4	35	100	41	120	47	130	53	150	59	170
1.5	35	100	41	120	46	130	52	150	58	170
1.6	34	100	40	120	46	130	51	150	57	170
1.7	34	100	39	120	45	130	51	150	56	170
1.8	33	100	39	120	45	130	50	150	56	170
1.9	33	100	39	120	44	130	50	150	55	170
2.0	33	100	38	120	44	130	49	150	55	170
2.1	32	100	38	120	43	130	49	150	54	170
2.2	32	100	38	120	43	130	48	150	54	170
2.3	32	100	37	120	43	130	48	150	53	170
2.4	32	100	37	120	42	130	48	150	53	170
2.5	31	100	37	120	42	130	47	150	53	170
2.6	31	100	37	120	42	130	47	150	52	170
2.7	31	100	36	120	42	130	47	150	52	170
2.8	31	100	36	120	42	130	47	150	52	170
2.9	31	100	36	120	41	130	47	150	52	170
3.0	31	100	36	120	41	130	46	150	51	170
3.1	31	100	36	120	41	130	46	150	51	170
3.2	30	100	36	120	41	130	46	150	51	170
3.3	30	100	36	120	41	130	46	150	51	170
3.4	30	100	35	120	41	130	46	150	51	170
3.5	30	100	35	120	40	130	45	150	50	170
3.6	30	100	35	120	40	130	45	150	50	170
3.7	30	100	35	120	40	130	45	150	50	170
3.8	30	100	35	120	40	130	45	150	50	170
3.9	30	100	35	120	40	130	45	150	50	170
4.0	30	100	35	120	40	130	45	150	50	170

Table 10F. Effluent Limitations – Copper, Total Recoverable for City of Grass Valley, Wastewater Treatment Plant

Hardness (H) in mg/L	200 ≤ H < 250		250 ≤ H < 300		300 ≤ H < 350		350 ≤ H < 400		H ≥ 400	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	130	150	160	180	180	210	210	240	220	250
0.2	130	170	150	200	180	230	200	270	210	280
0.3	120	190	150	220	170	260	190	290	200	310
0.4	120	200	140	240	170	280	190	310	200	330
0.5	110	200	130	240	150	280	170	320	180	340
0.6	98	200	120	240	140	280	160	320	170	340
0.7	91	200	110	240	130	280	150	320	160	340
0.8	86	200	100	240	120	280	140	320	150	340
0.9	81	200	98	240	120	280	130	320	140	340
1.0	78	200	94	240	110	280	130	320	130	340
1.1	75	200	91	240	110	280	120	320	130	340
1.2	73	200	88	240	100	280	120	320	130	340
1.3	71	200	86	240	100	280	110	320	120	340
1.4	69	200	84	240	98	280	110	320	120	340
1.5	68	200	82	240	96	280	110	320	120	340
1.6	67	200	81	240	95	280	110	320	120	340
1.7	66	200	80	240	93	280	110	320	110	340
1.8	65	200	79	240	92	280	110	320	110	340
1.9	65	200	78	240	91	280	100	320	110	340
2.0	64	200	77	240	90	280	100	320	110	340
2.1	63	200	77	240	90	280	100	320	110	340
2.2	63	200	76	240	89	280	100	320	110	340
2.3	63	200	76	240	88	280	100	320	110	340
2.4	62	200	75	240	88	280	100	320	110	340
2.5	62	200	75	240	87	280	100	320	110	340
2.6	61	200	74	240	87	280	99	320	110	340
2.7	61	200	74	240	86	280	99	320	110	340
2.8	61	200	74	240	86	280	98	320	100	340
2.9	61	200	73	240	86	280	98	320	100	340
3.0	60	200	73	240	85	280	98	320	100	340
3.1	60	200	73	240	85	280	97	320	100	340
3.2	60	200	72	240	85	280	97	320	100	340
3.3	60	200	72	240	84	280	96	320	100	340
3.4	59	200	72	240	84	280	96	320	100	340
3.5	59	200	72	240	84	280	96	320	100	340
3.6	59	200	71	240	83	280	94	310	100	330
3.7	59	200	71	240	83	280	93	310	99	330
3.8	59	200	71	240	82	270	92	310	97	330
3.9	58	200	70	240	81	270	91	310	96	320
4.0	58	200	69	230	80	270	90	300	95	320

Table 11A. Effluent Limitations – Zinc, Total Recoverable for City of Grass Valley, Wastewater Treatment Plant

Hardness (H) in mg/L	0 ≤ H < 5		5 ≤ H < 10		10 ≤ H < 15		15 ≤ H < 20		20 ≤ H < 25	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	7.8	9.0	20	23	30	35	40	47	50	58
0.2	6.8	9.0	17	23	27	35	35	47	44	58
0.3	6.0	9.0	15	23	23	35	31	47	39	58
0.4	5.4	9.0	14	23	21	35	28	47	35	58
0.5	4.9	9.0	12	23	19	35	25	47	31	58
0.6	4.5	9.0	11	23	18	35	23	47	29	58
0.7	4.2	9.0	11	23	16	35	22	47	27	58
0.8	3.9	9.0	10	23	15	35	20	47	25	58
0.9	3.7	9.0	9.5	23	15	35	19	47	24	58
1.0	3.6	9.0	9.1	23	14	35	19	47	23	58
1.1	3.4	9.0	8.7	23	13	35	18	47	22	58
1.2	3.3	9.0	8.5	23	13	35	17	47	21	58
1.3	3.3	9.0	8.3	23	13	35	17	47	21	58
1.4	3.2	9.0	8.1	23	12	35	17	47	20	58
1.5	3.1	9.0	7.9	23	12	35	16	47	20	58
1.6	3.1	9.0	7.8	23	12	35	16	47	20	58
1.7	3.0	9.0	7.7	23	12	35	16	47	19	58
1.8	3.0	9.0	7.6	23	12	35	16	47	19	58
1.9	3.0	9.0	7.5	23	12	35	15	47	19	58
2.0	2.9	9.0	7.4	23	11	35	15	47	19	58
2.1	2.9	9.0	7.4	23	11	35	15	47	19	58
2.2	2.9	9.0	7.3	23	11	35	15	47	19	58
2.3	2.9	9.0	7.3	23	11	35	15	47	18	58
2.4	2.8	9.0	7.2	23	11	35	15	47	18	58
2.5	2.8	9.0	7.2	23	11	35	15	47	18	58
2.6	2.8	9.0	7.1	23	11	35	15	47	18	58
2.7	2.8	9.0	7.1	23	11	35	15	47	18	58
2.8	2.8	9.0	7.1	23	11	35	14	47	18	58
2.9	2.8	9.0	7.0	23	11	35	14	47	18	58
3.0	2.8	9.0	7.0	23	11	35	14	47	18	58
3.1	2.8	9.0	7.0	23	11	35	14	47	18	58
3.2	2.7	9.0	7.0	23	11	35	14	47	18	58
3.3	2.7	9.0	6.9	23	11	35	14	47	18	58
3.4	2.7	9.0	6.9	23	11	35	14	47	18	58
3.5	2.7	9.0	6.9	23	11	35	14	47	17	58
3.6	2.7	9.0	6.9	23	11	35	14	47	17	58
3.7	2.7	9.0	6.8	23	11	35	14	47	17	58
3.8	2.7	9.0	6.8	23	11	35	14	47	17	58
3.9	2.7	9.0	6.8	23	10	35	14	47	17	58
4.0	2.7	9.0	6.8	23	10	35	14	47	17	58

Table 11B. Effluent Limitations – Zinc, Total Recoverable for City of Grass Valley Wastewater Treatment Plant

Hardness (H) in mg/L	25 ≤ H < 30		30 ≤ H < 35		35 ≤ H < 40		40 ≤ H < 45		45 ≤ H < 50	
	AMEL	MDEL								
CV										
0.1	59	69	68	79	77	89	86	99	94	110
0.2	52	69	60	79	67	89	75	99	82	110
0.3	46	69	53	79	60	89	66	99	73	110
0.4	41	69	47	79	53	89	59	99	65	110
0.5	37	69	43	79	48	89	54	99	59	110
0.6	34	69	39	79	45	89	50	99	54	110
0.7	32	69	37	79	41	89	46	99	51	110
0.8	30	69	35	79	39	89	43	99	48	110
0.9	28	69	33	79	37	89	41	99	45	110
1.0	27	69	31	79	35	89	39	99	43	110
1.1	26	69	30	79	34	89	38	99	42	110
1.2	25	69	29	79	33	89	37	99	40	110
1.3	25	69	29	79	32	89	36	99	39	110
1.4	24	69	28	79	32	89	35	99	39	110
1.5	24	69	27	79	31	89	34	99	38	110
1.6	23	69	27	79	30	89	34	99	37	110
1.7	23	69	27	79	30	89	33	99	37	110
1.8	23	69	26	79	30	89	33	99	36	110
1.9	23	69	26	79	29	89	33	99	36	110
2.0	22	69	26	79	29	89	32	99	36	110
2.1	22	69	26	79	29	89	32	99	35	110
2.2	22	69	25	79	29	89	32	99	35	110
2.3	22	69	25	79	28	89	32	99	35	110
2.4	22	69	25	79	28	89	31	99	34	110
2.5	22	69	25	79	28	89	31	99	34	110
2.6	21	69	25	79	28	89	31	99	34	110
2.7	21	69	25	79	28	89	31	99	34	110
2.8	21	69	24	79	28	89	31	99	34	110
2.9	21	69	24	79	28	89	31	99	34	110
3.0	21	69	24	79	27	89	30	99	33	110
3.1	21	69	24	79	27	89	30	99	33	110
3.2	21	69	24	79	27	89	30	99	33	110
3.3	21	69	24	79	27	89	30	99	33	110
3.4	21	69	24	79	27	89	30	99	33	110
3.5	21	69	24	79	27	89	30	99	33	110
3.6	21	69	24	79	27	89	30	99	33	110
3.7	21	69	24	79	27	89	30	99	33	110
3.8	20	69	24	79	27	89	30	99	33	110
3.9	20	69	24	79	27	89	30	99	32	110
4.0	20	69	23	79	26	89	29	99	32	110

Table 11C. Effluent Limitations – Zinc, Total Recoverable for City of Grass Valley Wastewater Treatment Plant

Hardness (H) in mg/L	50 ≤ H < 55		55 ≤ H < 60		60 ≤ H < 65		65 ≤ H < 70		70 ≤ H < 75	
	AMEL	MDEL								
CV										
0.1	100	120	110	130	120	140	130	150	140	160
0.2	90	120	97	130	100	140	110	150	120	160
0.3	79	120	86	130	92	140	98	150	100	160
0.4	71	120	77	130	82	140	88	150	93	160
0.5	64	120	70	130	75	140	80	150	85	160
0.6	59	120	64	130	69	140	73	150	78	160
0.7	55	120	60	130	64	140	68	150	72	160
0.8	52	120	56	130	60	140	64	150	68	160
0.9	49	120	53	130	57	140	61	150	65	160
1.0	47	120	51	130	55	140	58	150	62	160
1.1	45	120	49	130	53	140	56	150	60	160
1.2	44	120	48	130	51	140	55	150	58	160
1.3	43	120	46	130	50	140	53	150	56	160
1.4	42	120	45	130	49	140	52	150	55	160
1.5	41	120	44	130	48	140	51	150	54	160
1.6	41	120	44	130	47	140	50	150	53	160
1.7	40	120	43	130	46	140	49	150	52	160
1.8	39	120	43	130	46	140	49	150	52	160
1.9	39	120	42	130	45	140	48	150	51	160
2.0	39	120	42	130	45	140	48	150	51	160
2.1	38	120	41	130	44	140	47	150	50	160
2.2	38	120	41	130	44	140	47	150	50	160
2.3	38	120	41	130	44	140	47	150	50	160
2.4	38	120	41	130	44	140	46	150	49	160
2.5	37	120	40	130	43	140	46	150	49	160
2.6	37	120	40	130	43	140	46	150	49	160
2.7	37	120	40	130	43	140	46	150	49	160
2.8	37	120	40	130	43	140	46	150	48	160
2.9	37	120	40	130	42	140	45	150	48	160
3.0	36	120	39	130	42	140	45	150	48	160
3.1	36	120	39	130	42	140	45	150	48	160
3.2	36	120	39	130	42	140	45	150	48	160
3.3	36	120	39	130	42	140	45	150	47	160
3.4	36	120	39	130	42	140	44	150	47	160
3.5	36	120	39	130	41	140	44	150	47	160
3.6	36	120	39	130	41	140	44	150	47	160
3.7	36	120	38	130	41	140	44	150	47	160
3.8	35	120	38	130	41	140	44	150	47	160
3.9	35	120	38	130	41	140	44	150	46	160
4.0	35	120	38	130	41	140	44	150	46	160

Table 11D. Effluent Limitations – Zinc, Total Recoverable for City of Grass Valley Wastewater Treatment Plant

Hardness (H) in mg/L	75 ≤ H < 80		80 ≤ H < 85		85 ≤ H < 90		90 ≤ H < 95		95 ≤ H < 100	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	140	170	150	170	160	180	170	190	170	200
0.2	120	170	130	170	140	180	140	190	150	200
0.3	110	170	120	170	120	180	130	190	130	200
0.4	99	170	100	170	110	180	110	190	120	200
0.5	90	170	94	170	99	180	100	190	110	200
0.6	82	170	87	170	91	180	96	190	100	200
0.7	77	170	81	170	85	180	89	190	93	200
0.8	72	170	76	170	80	180	84	190	88	200
0.9	69	170	72	170	76	180	80	190	83	200
1.0	66	170	69	170	73	180	76	190	80	200
1.1	63	170	67	170	70	180	73	190	77	200
1.2	61	170	65	170	68	180	71	190	74	200
1.3	60	170	63	170	66	180	69	190	73	200
1.4	58	170	62	170	65	180	68	190	71	200
1.5	57	170	60	170	63	180	67	190	70	200
1.6	56	170	59	170	62	180	65	190	68	200
1.7	56	170	59	170	62	180	65	190	67	200
1.8	55	170	58	170	61	180	64	190	67	200
1.9	54	170	57	170	60	180	63	190	66	200
2.0	54	170	57	170	60	180	62	190	65	200
2.1	53	170	56	170	59	180	62	190	65	200
2.2	53	170	56	170	59	180	61	190	64	200
2.3	53	170	55	170	58	180	61	190	64	200
2.4	52	170	55	170	58	180	61	190	63	200
2.5	52	170	55	170	58	180	60	190	63	200
2.6	52	170	54	170	57	180	60	190	63	200
2.7	51	170	54	170	57	180	60	190	62	200
2.8	51	170	54	170	57	180	59	190	62	200
2.9	51	170	54	170	56	180	59	190	62	200
3.0	51	170	53	170	56	180	59	190	62	200
3.1	51	170	53	170	56	180	59	190	61	200
3.2	50	170	53	170	56	180	58	190	61	200
3.3	50	170	53	170	56	180	58	190	61	200
3.4	50	170	53	170	55	180	58	190	61	200
3.5	50	170	52	170	55	180	58	190	60	200
3.6	50	170	52	170	55	180	58	190	60	200
3.7	49	170	52	170	55	180	57	190	60	200
3.8	49	170	52	170	55	180	57	190	60	200
3.9	49	170	52	170	54	180	57	190	60	200
4.0	49	170	52	170	54	180	57	190	60	200

Table 11E. Effluent Limitations – Zinc, Total Recoverable for City of Grass Valley Wastewater Treatment Plant

Hardness (H) in mg/L	100 ≤ H < 120		120 ≤ H < 140		140 ≤ H < 160		160 ≤ H < 180		180 ≤ H < 200	
	AMEL	MDEL								
CV										
0.1	190	220	220	260	250	290	280	320	310	350
0.2	170	220	190	260	220	290	240	320	270	350
0.3	150	220	170	260	190	290	210	320	240	350
0.4	130	220	150	260	170	290	190	320	210	350
0.5	120	220	140	260	160	290	170	320	190	350
0.6	110	220	130	260	140	290	160	320	180	350
0.7	100	220	120	260	130	290	150	320	160	350
0.8	97	220	110	260	130	290	140	320	150	350
0.9	92	220	110	260	120	290	130	320	150	350
1.0	88	220	100	260	110	290	130	320	140	350
1.1	85	220	98	260	110	290	120	320	140	350
1.2	82	220	95	260	110	290	120	320	130	350
1.3	80	220	93	260	100	290	120	320	130	350
1.4	79	220	90	260	100	290	110	320	120	350
1.5	77	220	89	260	100	290	110	320	120	350
1.6	76	220	87	260	99	290	110	320	120	350
1.7	75	220	86	260	97	290	110	320	120	350
1.8	74	220	85	260	96	290	110	320	120	350
1.9	73	220	84	260	95	290	110	320	120	350
2.0	72	220	83	260	94	290	100	320	110	350
2.1	72	220	83	260	93	290	100	320	110	350
2.2	71	220	82	260	93	290	100	320	110	350
2.3	71	220	81	260	92	290	100	320	110	350
2.4	70	220	81	260	91	290	100	320	110	350
2.5	70	220	80	260	91	290	100	320	110	350
2.6	69	220	80	260	90	290	100	320	110	350
2.7	69	220	80	260	90	290	100	320	110	350
2.8	69	220	79	260	90	290	100	320	110	350
2.9	69	220	79	260	89	290	99	320	110	350
3.0	68	220	79	260	89	290	99	320	110	350
3.1	68	220	78	260	88	290	98	320	110	350
3.2	68	220	78	260	88	290	98	320	110	350
3.3	67	220	78	260	88	290	98	320	110	350
3.4	67	220	77	260	87	290	97	320	110	350
3.5	67	220	77	260	87	290	97	320	110	350
3.6	67	220	77	260	87	290	97	320	110	350
3.7	67	220	77	260	87	290	96	320	110	350
3.8	66	220	76	260	86	290	96	320	110	350
3.9	66	220	76	260	86	290	96	320	110	350
4.0	66	220	76	260	86	290	95	320	100	350

Table 11F. Effluent Limitations – Zinc, Total Recoverable for City of Grass Valley Wastewater Treatment Plant

Hardness (H) in mg/L	200 ≤ H < 250		250 ≤ H < 300		300 ≤ H < 350		350 ≤ H < 400		H ≥ 400	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
CV										
0.1	350	410	420	480	480	560	540	630	570	660
0.2	310	410	360	480	420	560	470	630	500	660
0.3	270	410	320	480	370	560	420	630	440	660
0.4	240	410	290	480	330	560	380	630	400	660
0.5	220	410	260	480	300	560	340	630	360	660
0.6	200	410	240	480	280	560	310	630	330	660
0.7	190	410	220	480	260	560	290	630	310	660
0.8	180	410	210	480	240	560	270	630	290	660
0.9	170	410	200	480	230	560	260	630	280	660
1.0	160	410	190	480	220	560	250	630	260	660
1.1	160	410	180	480	210	560	240	630	250	660
1.2	150	410	180	480	210	560	230	630	250	660
1.3	150	410	170	480	200	560	230	630	240	660
1.4	140	410	170	480	200	560	220	630	230	660
1.5	140	410	170	480	190	560	220	630	230	660
1.6	140	410	160	480	190	560	210	630	230	660
1.7	140	410	160	480	190	560	210	630	220	660
1.8	140	410	160	480	180	560	210	630	220	660
1.9	130	410	160	480	180	560	210	630	220	660
2.0	130	410	160	480	180	560	200	630	220	660
2.1	130	410	160	480	180	560	200	630	210	660
2.2	130	410	150	480	180	560	200	630	210	660
2.3	130	410	150	480	180	560	200	630	210	660
2.4	130	410	150	480	180	560	200	630	210	660
2.5	130	410	150	480	170	560	200	630	210	660
2.6	130	410	150	480	170	560	200	630	210	660
2.7	130	410	150	480	170	560	200	630	210	660
2.8	130	410	150	480	170	560	190	630	210	660
2.9	130	410	150	480	170	560	190	630	200	660
3.0	130	410	150	480	170	560	190	630	200	660
3.1	120	410	150	480	170	560	190	630	200	660
3.2	120	410	150	480	170	560	190	630	200	660
3.3	120	410	150	480	170	560	190	630	200	660
3.4	120	410	150	480	170	560	190	630	200	660
3.5	120	410	150	480	170	560	190	630	200	660
3.6	120	410	150	480	170	560	190	630	200	660
3.7	120	410	140	480	170	560	190	630	200	660
3.8	120	410	140	480	170	560	190	630	200	660
3.9	120	410	140	480	170	560	190	630	200	660
4.0	120	410	140	480	170	560	190	630	200	660

- iv. **Applicable to Discharges in the Sacramento-San Joaquin Delta.** For discharges to receiving waters within the legal boundaries of the Sacramento-San Joaquin Delta, the priority pollutant effluent limitations, as identified in the Notice of Applicability from the Executive Officer, shall not exceed the effluent limitations in Table 12 below:

Table 12. Effluent Limitations – Priority Pollutants (Receiving Waters in the Sacramento-San Joaquin Delta)

CV	Arsenic, Total Recoverable		Copper, Total Recoverable		Cyanide, Total (as CN)		Zinc, Total Recoverable	
	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL	AMEL	MDEL
0.1	10	12	9.0	10	8.6	10	88	100
0.2	10	13	7.9	10	7.5	10	77	100
0.3	10	15	6.9	10	6.7	10	68	100
0.4	10	17	6.2	10	6.0	10	61	100
0.5	10	18	5.6	10	5.4	10	55	100
0.6	10	20	5.2	10	5.0	10	51	100
0.7	10	22	4.8	10	4.6	10	47	100
0.8	10	23	4.5	10	4.4	10	45	100
0.9	10	24	4.3	10	4.1	10	42	100
1.0	10	25	4.1	10	4.0	10	41	100
1.1	10	26	4.0	10	3.8	10	39	100
1.2	10	27	3.9	10	3.7	10	38	100
1.3	10	28	3.8	10	3.6	10	37	100
1.4	10	28	3.7	10	3.5	10	36	100
1.5	10	29	3.6	10	3.5	10	35	100
1.6	10	29	3.5	10	3.4	10	35	100
1.7	10	30	3.5	10	3.4	10	34	100
1.8	10	30	3.5	10	3.3	10	34	100
1.9	10	30	3.4	10	3.3	10	34	100
2.0	10	31	3.4	10	3.3	10	33	100
2.1	10	31	3.4	10	3.2	10	33	100
2.2	10	31	3.3	10	3.2	10	33	100
2.3	10	31	3.3	10	3.2	10	33	100
2.4	10	32	3.3	10	3.2	10	32	100
2.5	10	32	3.3	10	3.1	10	32	100
2.6	10	32	3.3	10	3.1	10	32	100
2.7	10	32	3.2	10	3.1	10	32	100
2.8	10	32	3.2	10	3.1	10	32	100
2.9	10	32	3.2	10	3.1	10	31	100
3.0	10	33	3.2	10	3.1	10	31	100
3.1	10	33	3.2	10	3.1	10	31	100
3.2	10	33	3.2	10	3.0	10	31	100
3.3	10	33	3.2	10	3.0	10	31	100
3.4	10	33	3.1	10	3.0	10	31	100
3.5	10	33	3.1	10	3.0	10	31	100
3.6	10	33	3.1	10	3.0	10	31	100
3.7	10	33	3.1	10	3.0	10	31	100
3.8	10	34	3.1	10	3.0	10	30	100
3.9	10	34	3.1	10	3.0	10	30	100
4.0	10	34	3.1	10	3.0	10	30	100

c. Water Quality-Based Effluent Limitations for Other Constituents of Concern

To determine the constituents requiring effluent limitations, the Central Valley Water Board will conduct an RPA using the effluent and ambient background data as discussed in section V.C.2.b of the Fact Sheet (Attachment), the screening levels in Attachment C (where applicable), and the pollutant-specific procedures specified in section V.C.3.b of the Fact Sheet (Attachment F). See Attachment C and section V.C.3.b of the Fact Sheet (Attachment F) for additional information regarding the constituent-specific RPA procedures. For constituents that exhibit reasonable potential to cause or contribute to a water quality criterion/objective, the Executive Officer shall indicate the applicable effluent limitations in the Notice of Applicability.

- i. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - (a) 70%, minimum for any one bioassay; and
 - (b) 90%, median for any three consecutive bioassays.
- ii. **Chronic Whole Effluent Toxicity.** The effluent chronic toxicity shall not exceed 1 chronic toxicity units (as 100/NOEC) AND a percent effect of 25 percent at 100 percent effluent, for any endpoint as the median of up to three consecutive chronic toxicity tests within a six week period.
- iii. **Chlorine, Total Residual.** For Dischargers that utilize chlorine for disinfection, effluent total residual chlorine shall not exceed:
 - (a) 0.011 mg/L, as a 4-day average; and
 - (b) 0.019 mg/L, as a 1-hour average.
- iv. **pH**
 - (a) The pH of all discharges within the Sacramento and San Joaquin River Basins (except Goose Lake in Modoc County) shall at all times be within the range of 6.5 and 8.5. The Executive Officer may specify a lower instantaneous maximum in the Notice of Applicability. Table 13 below is a list of site-specific pH limits that are included in the respective discharger’s current individual NPDES permit.

Table 13. Effluent Limitations – pH Site-Specific Requirements for the Sacramento and San Joaquin River Basins

Discharger	Instantaneous Maximum pH Effluent Limitation (standard units)
City of Auburn, Wastewater Treatment Plant	8.0
City of Grass Valley, Wastewater Treatment Plant	
Donner Summit Public Utilities District, Wastewater Treatment Plant	
Nevada County Sanitation District No. 1, Lake of the Pines Wastewater Treatment Plant	
Nevada County Sanitation District No. 1, Lake Wildwood Wastewater Treatment Plant	
Nevada County Sanitation District No. 1, Cascade Shores Wastewater Treatment Plant	
City of Placerville, Hangtown Creek Water Reclamation Facility	8.1
City of Atwater, Atwater Regional Wastewater Treatment Facility	8.2
City of Galt, Wastewater Treatment Plant and Reclamation Facility	

Discharger	Instantaneous Maximum pH Effluent Limitation (standard units)
El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant	8.3
El Dorado Irrigation District, El Dorado Hills Wastewater Treatment Plant	
University of California, Davis, Main Wastewater Treatment Plant	
City of Roseville, Pleasant Grove Wastewater Treatment Plant	

- (b) The pH of all discharges to Goose Lake in Modoc County shall at all times be within the range of 7.5 and 9.5. The Executive Officer may specify a lower instantaneous maximum in the Notice of Applicability.
- (c) The pH of all discharges within the Tulare Lake Basin shall at all times be within the range of 6.5 and 8.3. The Executive Officer may specify a lower instantaneous maximum in the Notice of Applicability. Table 14 below is a list of site-specific pH limits that are included in the respective discharger’s current individual NPDES permit.

Table 14. Effluent Limitations – pH Site-Specific Requirements for the Tulare Lake Basin

Discharger	Instantaneous Maximum pH Effluent Limitation (standard units)
City of Clovis, Clovis Sewage Treatment and Water Reuse Facility (Discharge Point 002 only)	8.1
City of Clovis, Clovis Sewage Treatment and Water Reuse Facility (Discharge Point 001 only)	8.2

v. **Ammonia**

- (a) **Applicable to Dischargers in the Tulare Lake Basin.** Effluent un-ionized ammonia (NH₃) shall not exceed 0.025 mg/L (as N).
- (b) **Applicable to All Dischargers.** Effluent total ammonia nitrogen (as N) shall not exceed the applicable effluent limitations in Tables 15A through 15N or Tables 16A through 16D, whichever are more stringent, as specified in the Notice of Applicability.

The effluent limitations in Tables 15A through 15N are based on the 30-day criteria continuous concentration (CCC). The effluent limitations in Tables 15A through 15N applicable to each Discharger shall be determined by calculating the CCC in accordance with the procedures described in section IV.B of Attachment C and calculating the CV of effluent ammonia concentrations.

The effluent limitations in Tables 16A through 16D are based on the 1-hour criteria maximum concentration (CMC). The Central Valley Water Board will evaluate site-specific information to determine the presence or absence of salmonids in the receiving water, including the applicability of the cold freshwater habitat (COLD). If the Central Valley Water Board determines that salmonids are present or potentially present in the receiving water, the effluent limitations based on the CMC shall be selected from Tables 16A through 16B. If the Central Valley Water Board determines that the salmonids are not present in the receiving water, the effluent limitations based on the CMC shall be selected from Tables 16C through 16D. The effluent limitations

in Tables 16A through 16D applicable to each Discharger shall be determined based on the maximum permitted pH (see pH effluent limitations in section V.A.1.c.iv above) or on the maximum observed effluent pH, whichever is lower, and calculating the CV of effluent ammonia concentrations.

The Discharger may request seasonal effluent limitations for ammonia in the Notice of Intent. The Discharger's request shall specify the requested timeframes for the seasonal limitations (e.g., 1 May through 31 October and 1 November through 30 April) and provide a justification describing why seasonal effluent limitations are necessary and appropriate.

Mass-based average monthly and average weekly effluent limitations for total ammonia nitrogen (as N) shall be established in the Notice of Applicability based on the design average dry weather flow.

Table 15A. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC ¹ (mg/L)	0.0 ≤ CCC < 0.1		0.1 ≤ CCC < 0.2		0.2 ≤ CCC < 0.3		0.3 ≤ CCC < 0.4		0.4 ≤ CCC < 0.5	
	AMEL	AWEL								
CV										
0.1	0.099	0.12	0.099	0.12	0.20	0.23	0.30	0.35	0.40	0.47
0.2	0.098	0.14	0.098	0.14	0.20	0.27	0.29	0.41	0.39	0.54
0.3	0.096	0.15	0.096	0.15	0.19	0.31	0.29	0.46	0.39	0.62
0.4	0.095	0.17	0.095	0.17	0.19	0.35	0.29	0.52	0.38	0.69
0.5	0.094	0.19	0.094	0.19	0.19	0.38	0.28	0.58	0.38	0.77
0.6	0.093	0.21	0.093	0.21	0.19	0.42	0.28	0.63	0.37	0.84
0.7	0.092	0.22	0.092	0.22	0.18	0.45	0.28	0.67	0.37	0.90
0.8	0.091	0.24	0.091	0.24	0.18	0.48	0.27	0.72	0.36	0.95
0.9	0.089	0.25	0.089	0.25	0.18	0.50	0.27	0.75	0.36	1.00
1.0	0.088	0.26	0.088	0.26	0.18	0.52	0.27	0.78	0.35	1.04
1.1	0.087	0.27	0.087	0.27	0.17	0.54	0.26	0.81	0.35	1.08
1.2	0.086	0.28	0.086	0.28	0.17	0.55	0.26	0.83	0.35	1.10
1.3	0.085	0.28	0.085	0.28	0.17	0.56	0.26	0.84	0.34	1.12
1.4	0.084	0.28	0.084	0.28	0.17	0.57	0.25	0.85	0.34	1.14
1.5	0.083	0.29	0.083	0.29	0.17	0.57	0.25	0.86	0.33	1.14
1.6	0.082	0.29	0.082	0.29	0.16	0.57	0.25	0.86	0.33	1.15
1.7	0.081	0.29	0.081	0.29	0.16	0.57	0.24	0.86	0.33	1.15
1.8	0.080	0.29	0.080	0.29	0.16	0.57	0.24	0.86	0.32	1.15
1.9	0.079	0.29	0.079	0.29	0.16	0.57	0.24	0.86	0.32	1.14
2.0	0.079	0.28	0.079	0.28	0.16	0.57	0.24	0.85	0.31	1.13
2.1	0.078	0.28	0.078	0.28	0.16	0.56	0.23	0.84	0.31	1.12
2.2	0.077	0.28	0.077	0.28	0.15	0.56	0.23	0.83	0.31	1.11
2.3	0.076	0.27	0.076	0.27	0.15	0.55	0.23	0.82	0.30	1.10
2.4	0.075	0.27	0.075	0.27	0.15	0.54	0.23	0.81	0.30	1.08
2.5	0.074	0.27	0.074	0.27	0.15	0.53	0.22	0.80	0.30	1.07
2.6	0.074	0.26	0.074	0.26	0.15	0.53	0.22	0.79	0.29	1.05
2.7	0.073	0.26	0.073	0.26	0.15	0.52	0.22	0.78	0.29	1.04
2.8	0.072	0.26	0.072	0.26	0.14	0.51	0.22	0.77	0.29	1.02
2.9	0.071	0.25	0.071	0.25	0.14	0.50	0.21	0.75	0.29	1.01
3.0	0.071	0.25	0.071	0.25	0.14	0.49	0.21	0.74	0.28	0.99
3.1	0.070	0.24	0.070	0.24	0.14	0.49	0.21	0.73	0.28	0.97
3.2	0.069	0.24	0.069	0.24	0.14	0.48	0.21	0.72	0.28	0.96
3.3	0.068	0.24	0.068	0.24	0.14	0.47	0.21	0.71	0.27	0.94
3.4	0.068	0.23	0.068	0.23	0.14	0.46	0.20	0.69	0.27	0.92
3.5	0.067	0.23	0.067	0.23	0.13	0.45	0.20	0.68	0.27	0.91
3.6	0.066	0.22	0.066	0.22	0.13	0.45	0.20	0.67	0.27	0.89

CCC ¹ (mg/L)	0.0 ≤ CCC < 0.1		0.1 ≤ CCC < 0.2		0.2 ≤ CCC < 0.3		0.3 ≤ CCC < 0.4		0.4 ≤ CCC < 0.5	
	AMEL	AWEL								
3.7	0.066	0.22	0.066	0.22	0.13	0.44	0.20	0.66	0.26	0.88
3.8	0.065	0.22	0.065	0.22	0.13	0.43	0.20	0.65	0.26	0.86
3.9	0.065	0.21	0.065	0.21	0.13	0.42	0.19	0.64	0.26	0.85
4.0	0.064	0.21	0.064	0.21	0.13	0.42	0.19	0.62	0.26	0.83

¹ CCC – Criteria continuous concentration

Table 15B. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	0.5 ≤ CCC < 0.6		0.6 ≤ CCC < 0.7		0.7 ≤ CCC < 0.8		0.8 ≤ CCC < 0.9		0.9 ≤ CCC < 1.0	
	AMEL	AWEL								
CV										
0.1	0.49	0.59	0.59	0.70	0.69	0.82	0.79	0.94	0.89	1.1
0.2	0.49	0.68	0.59	0.81	0.68	0.95	0.78	1.1	0.88	1.2
0.3	0.48	0.77	0.58	0.93	0.67	1.1	0.77	1.2	0.87	1.4
0.4	0.48	0.87	0.57	1.0	0.67	1.2	0.76	1.4	0.86	1.6
0.5	0.47	0.96	0.56	1.2	0.66	1.3	0.75	1.5	0.85	1.7
0.6	0.46	1.0	0.56	1.3	0.65	1.5	0.74	1.7	0.84	1.9
0.7	0.46	1.1	0.55	1.3	0.64	1.6	0.73	1.8	0.83	2.0
0.8	0.45	1.2	0.54	1.4	0.63	1.7	0.72	1.9	0.82	2.1
0.9	0.45	1.3	0.54	1.5	0.63	1.8	0.72	2.0	0.81	2.3
1.0	0.44	1.3	0.53	1.6	0.62	1.8	0.71	2.1	0.80	2.3
1.1	0.44	1.3	0.52	1.6	0.61	1.9	0.70	2.2	0.79	2.4
1.2	0.43	1.4	0.52	1.7	0.60	1.9	0.69	2.2	0.78	2.5
1.3	0.43	1.4	0.51	1.7	0.60	2.0	0.68	2.2	0.77	2.5
1.4	0.42	1.4	0.51	1.7	0.59	2.0	0.67	2.3	0.76	2.6
1.5	0.42	1.4	0.50	1.7	0.58	2.0	0.67	2.3	0.75	2.6
1.6	0.41	1.4	0.49	1.7	0.58	2.0	0.66	2.3	0.74	2.6
1.7	0.41	1.4	0.49	1.7	0.57	2.0	0.65	2.3	0.73	2.6
1.8	0.40	1.4	0.48	1.7	0.56	2.0	0.64	2.3	0.72	2.6
1.9	0.40	1.4	0.48	1.7	0.56	2.0	0.64	2.3	0.72	2.6
2.0	0.39	1.4	0.47	1.7	0.55	2.0	0.63	2.3	0.71	2.5
2.1	0.39	1.4	0.47	1.7	0.54	2.0	0.62	2.2	0.70	2.5
2.2	0.38	1.4	0.46	1.7	0.54	1.9	0.61	2.2	0.69	2.5
2.3	0.38	1.4	0.46	1.6	0.53	1.9	0.61	2.2	0.68	2.5
2.4	0.38	1.4	0.45	1.6	0.53	1.9	0.60	2.2	0.68	2.4
2.5	0.37	1.3	0.45	1.6	0.52	1.9	0.59	2.1	0.67	2.4
2.6	0.37	1.3	0.44	1.6	0.51	1.8	0.59	2.1	0.66	2.4
2.7	0.36	1.3	0.44	1.6	0.51	1.8	0.58	2.1	0.66	2.3
2.8	0.36	1.3	0.43	1.5	0.50	1.8	0.58	2.0	0.65	2.3
2.9	0.36	1.3	0.43	1.5	0.50	1.8	0.57	2.0	0.64	2.3
3.0	0.35	1.2	0.42	1.5	0.49	1.7	0.56	2.0	0.63	2.2
3.1	0.35	1.2	0.42	1.5	0.49	1.7	0.56	1.9	0.63	2.2
3.2	0.35	1.2	0.41	1.4	0.48	1.7	0.55	1.9	0.62	2.2
3.3	0.34	1.2	0.41	1.4	0.48	1.6	0.55	1.9	0.62	2.1
3.4	0.34	1.2	0.41	1.4	0.47	1.6	0.54	1.8	0.61	2.1
3.5	0.34	1.1	0.40	1.4	0.47	1.6	0.54	1.8	0.60	2.0
3.6	0.33	1.1	0.40	1.3	0.47	1.6	0.53	1.8	0.60	2.0
3.7	0.33	1.1	0.40	1.3	0.46	1.5	0.53	1.8	0.59	2.0
3.8	0.33	1.1	0.39	1.3	0.46	1.5	0.52	1.7	0.59	1.9
3.9	0.32	1.1	0.39	1.3	0.45	1.5	0.52	1.7	0.58	1.9
4.0	0.32	1.0	0.38	1.2	0.45	1.5	0.51	1.7	0.58	1.9

Table 15C. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	1.0 ≤ CCC < 1.1		1.1 ≤ CCC < 1.2		1.2 ≤ CCC < 1.3		1.3 ≤ CCC < 1.4		1.4 ≤ CCC < 1.5	
	AMEL	AWEL								
CV										
0.1	0.99	1.2	1.1	1.3	1.2	1.4	1.3	1.5	1.4	1.6
0.2	0.98	1.4	1.1	1.5	1.2	1.6	1.3	1.8	1.4	1.9
0.3	0.96	1.5	1.1	1.7	1.2	1.9	1.3	2.0	1.3	2.2
0.4	0.95	1.7	1.0	1.9	1.1	2.1	1.2	2.3	1.3	2.4
0.5	0.94	1.9	1.0	2.1	1.1	2.3	1.2	2.5	1.3	2.7
0.6	0.93	2.1	1.0	2.3	1.1	2.5	1.2	2.7	1.3	2.9
0.7	0.92	2.2	1.0	2.5	1.1	2.7	1.2	2.9	1.3	3.1
0.8	0.91	2.4	1.0	2.6	1.1	2.9	1.2	3.1	1.3	3.3
0.9	0.89	2.5	0.98	2.8	1.1	3.0	1.2	3.3	1.3	3.5
1.0	0.88	2.6	0.97	2.9	1.1	3.1	1.1	3.4	1.2	3.7
1.1	0.87	2.7	0.96	3.0	1.0	3.2	1.1	3.5	1.2	3.8
1.2	0.86	2.8	0.95	3.0	1.0	3.3	1.1	3.6	1.2	3.9
1.3	0.85	2.8	0.94	3.1	1.0	3.4	1.1	3.6	1.2	3.9
1.4	0.84	2.8	0.93	3.1	1.0	3.4	1.1	3.7	1.2	4.0
1.5	0.83	2.9	0.92	3.1	1.0	3.4	1.1	3.7	1.2	4.0
1.6	0.82	2.9	0.91	3.2	0.99	3.4	1.1	3.7	1.2	4.0
1.7	0.81	2.9	0.89	3.2	0.98	3.4	1.1	3.7	1.1	4.0
1.8	0.80	2.9	0.88	3.2	0.96	3.4	1.0	3.7	1.1	4.0
1.9	0.79	2.9	0.87	3.1	0.95	3.4	1.0	3.7	1.1	4.0
2.0	0.79	2.8	0.86	3.1	0.94	3.4	1.0	3.7	1.1	4.0
2.1	0.78	2.8	0.85	3.1	0.93	3.4	1.0	3.6	1.1	3.9
2.2	0.77	2.8	0.85	3.1	0.92	3.3	1.0	3.6	1.1	3.9
2.3	0.76	2.7	0.84	3.0	0.91	3.3	0.99	3.6	1.1	3.8
2.4	0.75	2.7	0.83	3.0	0.90	3.3	0.98	3.5	1.1	3.8
2.5	0.74	2.7	0.82	2.9	0.89	3.2	0.97	3.5	1.0	3.7
2.6	0.74	2.6	0.81	2.9	0.88	3.2	0.96	3.4	1.0	3.7
2.7	0.73	2.6	0.80	2.9	0.87	3.1	0.95	3.4	1.0	3.6
2.8	0.72	2.6	0.79	2.8	0.86	3.1	0.94	3.3	1.0	3.6
2.9	0.71	2.5	0.78	2.8	0.86	3.0	0.93	3.3	1.0	3.5
3.0	0.71	2.5	0.78	2.7	0.85	3.0	0.92	3.2	0.99	3.5
3.1	0.70	2.4	0.77	2.7	0.84	2.9	0.91	3.2	0.98	3.4
3.2	0.69	2.4	0.76	2.6	0.83	2.9	0.90	3.1	0.97	3.3
3.3	0.68	2.4	0.75	2.6	0.82	2.8	0.89	3.1	0.96	3.3
3.4	0.68	2.3	0.75	2.5	0.81	2.8	0.88	3.0	0.95	3.2
3.5	0.67	2.3	0.74	2.5	0.81	2.7	0.87	3.0	0.94	3.2
3.6	0.66	2.2	0.73	2.5	0.80	2.7	0.86	2.9	0.93	3.1
3.7	0.66	2.2	0.72	2.4	0.79	2.6	0.86	2.9	0.92	3.1
3.8	0.65	2.2	0.72	2.4	0.78	2.6	0.85	2.8	0.91	3.0
3.9	0.65	2.1	0.71	2.3	0.78	2.5	0.84	2.8	0.91	3.0
4.0	0.64	2.1	0.70	2.3	0.77	2.5	0.83	2.7	0.90	2.9

Table 15D. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	1.5 ≤ CCC < 1.6		1.6 ≤ CCC < 1.7		1.7 ≤ CCC < 1.8		1.8 ≤ CCC < 1.9		1.9 ≤ CCC < 2.0	
	AMEL	AWEL								
CV										
0.1	1.5	1.8	1.6	1.9	1.7	2.0	1.8	2.1	1.9	2.2
0.2	1.5	2.0	1.6	2.2	1.7	2.3	1.8	2.4	1.9	2.6
0.3	1.4	2.3	1.5	2.5	1.6	2.6	1.7	2.8	1.8	2.9
0.4	1.4	2.6	1.5	2.8	1.6	2.9	1.7	3.1	1.8	3.3
0.5	1.4	2.9	1.5	3.1	1.6	3.3	1.7	3.5	1.8	3.6
0.6	1.4	3.1	1.5	3.3	1.6	3.6	1.7	3.8	1.8	4.0
0.7	1.4	3.4	1.5	3.6	1.6	3.8	1.7	4.0	1.7	4.3
0.8	1.4	3.6	1.4	3.8	1.5	4.1	1.6	4.3	1.7	4.5
0.9	1.3	3.8	1.4	4.0	1.5	4.3	1.6	4.5	1.7	4.8
1.0	1.3	3.9	1.4	4.2	1.5	4.4	1.6	4.7	1.7	5.0
1.1	1.3	4.0	1.4	4.3	1.5	4.6	1.6	4.8	1.7	5.1
1.2	1.3	4.1	1.4	4.4	1.5	4.7	1.6	5.0	1.6	5.2
1.3	1.3	4.2	1.4	4.5	1.4	4.8	1.5	5.0	1.6	5.3
1.4	1.3	4.3	1.3	4.5	1.4	4.8	1.5	5.1	1.6	5.4
1.5	1.2	4.3	1.3	4.6	1.4	4.9	1.5	5.2	1.6	5.4
1.6	1.2	4.3	1.3	4.6	1.4	4.9	1.5	5.2	1.6	5.5
1.7	1.2	4.3	1.3	4.6	1.4	4.9	1.5	5.2	1.5	5.5
1.8	1.2	4.3	1.3	4.6	1.4	4.9	1.4	5.2	1.5	5.4
1.9	1.2	4.3	1.3	4.6	1.4	4.8	1.4	5.1	1.5	5.4
2.0	1.2	4.2	1.3	4.5	1.3	4.8	1.4	5.1	1.5	5.4
2.1	1.2	4.2	1.2	4.5	1.3	4.8	1.4	5.1	1.5	5.3
2.2	1.2	4.2	1.2	4.4	1.3	4.7	1.4	5.0	1.5	5.3
2.3	1.1	4.1	1.2	4.4	1.3	4.7	1.4	4.9	1.4	5.2
2.4	1.1	4.1	1.2	4.3	1.3	4.6	1.4	4.9	1.4	5.1
2.5	1.1	4.0	1.2	4.3	1.3	4.5	1.3	4.8	1.4	5.1
2.6	1.1	4.0	1.2	4.2	1.3	4.5	1.3	4.7	1.4	5.0
2.7	1.1	3.9	1.2	4.2	1.2	4.4	1.3	4.7	1.4	4.9
2.8	1.1	3.8	1.2	4.1	1.2	4.3	1.3	4.6	1.4	4.9
2.9	1.1	3.8	1.1	4.0	1.2	4.3	1.3	4.5	1.4	4.8
3.0	1.1	3.7	1.1	4.0	1.2	4.2	1.3	4.5	1.3	4.7
3.1	1.0	3.6	1.1	3.9	1.2	4.1	1.3	4.4	1.3	4.6
3.2	1.0	3.6	1.1	3.8	1.2	4.1	1.2	4.3	1.3	4.5
3.3	1.0	3.5	1.1	3.8	1.2	4.0	1.2	4.2	1.3	4.5
3.4	1.0	3.5	1.1	3.7	1.2	3.9	1.2	4.2	1.3	4.4
3.5	1.0	3.4	1.1	3.6	1.1	3.9	1.2	4.1	1.3	4.3
3.6	1.0	3.3	1.1	3.6	1.1	3.8	1.2	4.0	1.3	4.2
3.7	0.99	3.3	1.1	3.5	1.1	3.7	1.2	3.9	1.3	4.2
3.8	0.98	3.2	1.0	3.4	1.1	3.7	1.2	3.9	1.2	4.1
3.9	0.97	3.2	1.0	3.4	1.1	3.6	1.2	3.8	1.2	4.0
4.0	0.96	3.1	1.0	3.3	1.1	3.5	1.2	3.7	1.2	4.0

Table 15E. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L) CV	2.0 ≤ CCC < 2.1		2.1 ≤ CCC < 2.2		2.2 ≤ CCC < 2.3		2.3 ≤ CCC < 2.4		2.4 ≤ CCC < 2.5	
	AMEL	AWEL								
0.1	2.0	2.3	2.1	2.5	2.2	2.6	2.3	2.7	2.4	2.8
0.2	2.0	2.7	2.0	2.8	2.1	3.0	2.2	3.1	2.3	3.2
0.3	1.9	3.1	2.0	3.2	2.1	3.4	2.2	3.6	2.3	3.7
0.4	1.9	3.5	2.0	3.6	2.1	3.8	2.2	4.0	2.3	4.2
0.5	1.9	3.8	2.0	4.0	2.1	4.2	2.2	4.4	2.3	4.6
0.6	1.9	4.2	1.9	4.4	2.0	4.6	2.1	4.8	2.2	5.0
0.7	1.8	4.5	1.9	4.7	2.0	4.9	2.1	5.2	2.2	5.4
0.8	1.8	4.8	1.9	5.0	2.0	5.3	2.1	5.5	2.2	5.7
0.9	1.8	5.0	1.9	5.3	2.0	5.5	2.1	5.8	2.1	6.0
1.0	1.8	5.2	1.9	5.5	1.9	5.7	2.0	6.0	2.1	6.3
1.1	1.7	5.4	1.8	5.7	1.9	5.9	2.0	6.2	2.1	6.5
1.2	1.7	5.5	1.8	5.8	1.9	6.1	2.0	6.3	2.1	6.6
1.3	1.7	5.6	1.8	5.9	1.9	6.2	2.0	6.5	2.0	6.7
1.4	1.7	5.7	1.8	6.0	1.9	6.2	1.9	6.5	2.0	6.8
1.5	1.7	5.7	1.7	6.0	1.8	6.3	1.9	6.6	2.0	6.9
1.6	1.6	5.7	1.7	6.0	1.8	6.3	1.9	6.6	2.0	6.9
1.7	1.6	5.7	1.7	6.0	1.8	6.3	1.9	6.6	2.0	6.9
1.8	1.6	5.7	1.7	6.0	1.8	6.3	1.8	6.6	1.9	6.9
1.9	1.6	5.7	1.7	6.0	1.7	6.3	1.8	6.6	1.9	6.8
2.0	1.6	5.7	1.7	5.9	1.7	6.2	1.8	6.5	1.9	6.8
2.1	1.6	5.6	1.6	5.9	1.7	6.2	1.8	6.5	1.9	6.7
2.2	1.5	5.6	1.6	5.8	1.7	6.1	1.8	6.4	1.8	6.7
2.3	1.5	5.5	1.6	5.8	1.7	6.0	1.7	6.3	1.8	6.6
2.4	1.5	5.4	1.6	5.7	1.7	6.0	1.7	6.2	1.8	6.5
2.5	1.5	5.3	1.6	5.6	1.6	5.9	1.7	6.1	1.8	6.4
2.6	1.5	5.3	1.5	5.5	1.6	5.8	1.7	6.1	1.8	6.3
2.7	1.5	5.2	1.5	5.4	1.6	5.7	1.7	6.0	1.7	6.2
2.8	1.4	5.1	1.5	5.4	1.6	5.6	1.7	5.9	1.7	6.1
2.9	1.4	5.0	1.5	5.3	1.6	5.5	1.6	5.8	1.7	6.0
3.0	1.4	4.9	1.5	5.2	1.6	5.4	1.6	5.7	1.7	5.9
3.1	1.4	4.9	1.5	5.1	1.5	5.3	1.6	5.6	1.7	5.8
3.2	1.4	4.8	1.5	5.0	1.5	5.3	1.6	5.5	1.7	5.7
3.3	1.4	4.7	1.4	4.9	1.5	5.2	1.6	5.4	1.6	5.6
3.4	1.4	4.6	1.4	4.9	1.5	5.1	1.6	5.3	1.6	5.5
3.5	1.3	4.5	1.4	4.8	1.5	5.0	1.5	5.2	1.6	5.4
3.6	1.3	4.5	1.4	4.7	1.5	4.9	1.5	5.1	1.6	5.4
3.7	1.3	4.4	1.4	4.6	1.4	4.8	1.5	5.0	1.6	5.3
3.8	1.3	4.3	1.4	4.5	1.4	4.7	1.5	5.0	1.6	5.2
3.9	1.3	4.2	1.4	4.4	1.4	4.7	1.5	4.9	1.6	5.1
4.0	1.3	4.2	1.3	4.4	1.4	4.6	1.5	4.8	1.5	5.0

Table 15F. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	2.5 ≤ CCC < 2.6		2.6 ≤ CCC < 2.7		2.7 ≤ CCC < 2.8		2.8 ≤ CCC < 2.9		2.9 ≤ CCC < 3.0	
	AMEL	AWEL								
CV										
0.1	2.5	2.9	2.6	3.0	2.7	3.2	2.8	3.3	2.9	3.4
0.2	2.4	3.4	2.5	3.5	2.6	3.7	2.7	3.8	2.8	3.9
0.3	2.4	3.9	2.5	4.0	2.6	4.2	2.7	4.3	2.8	4.5
0.4	2.4	4.3	2.5	4.5	2.6	4.7	2.7	4.9	2.8	5.0
0.5	2.3	4.8	2.4	5.0	2.5	5.2	2.6	5.4	2.7	5.6
0.6	2.3	5.2	2.4	5.4	2.5	5.6	2.6	5.9	2.7	6.1
0.7	2.3	5.6	2.4	5.8	2.5	6.1	2.6	6.3	2.7	6.5
0.8	2.3	6.0	2.4	6.2	2.4	6.4	2.5	6.7	2.6	6.9
0.9	2.2	6.3	2.3	6.5	2.4	6.8	2.5	7.0	2.6	7.3
1.0	2.2	6.5	2.3	6.8	2.4	7.0	2.5	7.3	2.6	7.6
1.1	2.2	6.7	2.3	7.0	2.4	7.3	2.4	7.5	2.5	7.8
1.2	2.2	6.9	2.2	7.2	2.3	7.4	2.4	7.7	2.5	8.0
1.3	2.1	7.0	2.2	7.3	2.3	7.6	2.4	7.9	2.5	8.1
1.4	2.1	7.1	2.2	7.4	2.3	7.7	2.4	8.0	2.4	8.2
1.5	2.1	7.2	2.2	7.4	2.2	7.7	2.3	8.0	2.4	8.3
1.6	2.1	7.2	2.1	7.5	2.2	7.8	2.3	8.0	2.4	8.3
1.7	2.0	7.2	2.1	7.5	2.2	7.8	2.3	8.0	2.4	8.3
1.8	2.0	7.2	2.1	7.5	2.2	7.7	2.3	8.0	2.3	8.3
1.9	2.0	7.1	2.1	7.4	2.1	7.7	2.2	8.0	2.3	8.3
2.0	2.0	7.1	2.0	7.4	2.1	7.6	2.2	7.9	2.3	8.2
2.1	1.9	7.0	2.0	7.3	2.1	7.6	2.2	7.9	2.3	8.1
2.2	1.9	6.9	2.0	7.2	2.1	7.5	2.2	7.8	2.2	8.1
2.3	1.9	6.9	2.0	7.1	2.1	7.4	2.1	7.7	2.2	8.0
2.4	1.9	6.8	2.0	7.0	2.0	7.3	2.1	7.6	2.2	7.9
2.5	1.9	6.7	1.9	6.9	2.0	7.2	2.1	7.5	2.2	7.8
2.6	1.8	6.6	1.9	6.8	2.0	7.1	2.1	7.4	2.1	7.6
2.7	1.8	6.5	1.9	6.7	2.0	7.0	2.0	7.3	2.1	7.5
2.8	1.8	6.4	1.9	6.6	1.9	6.9	2.0	7.2	2.1	7.4
2.9	1.8	6.3	1.9	6.5	1.9	6.8	2.0	7.0	2.1	7.3
3.0	1.8	6.2	1.8	6.4	1.9	6.7	2.0	6.9	2.0	7.2
3.1	1.7	6.1	1.8	6.3	1.9	6.6	2.0	6.8	2.0	7.1
3.2	1.7	6.0	1.8	6.2	1.9	6.5	1.9	6.7	2.0	6.9
3.3	1.7	5.9	1.8	6.1	1.8	6.3	1.9	6.6	2.0	6.8
3.4	1.7	5.8	1.8	6.0	1.8	6.2	1.9	6.5	2.0	6.7
3.5	1.7	5.7	1.7	5.9	1.8	6.1	1.9	6.4	1.9	6.6
3.6	1.7	5.6	1.7	5.8	1.8	6.0	1.9	6.2	1.9	6.5
3.7	1.6	5.5	1.7	5.7	1.8	5.9	1.8	6.1	1.9	6.4
3.8	1.6	5.4	1.7	5.6	1.8	5.8	1.8	6.0	1.9	6.3
3.9	1.6	5.3	1.7	5.5	1.7	5.7	1.8	5.9	1.9	6.1
4.0	1.6	5.2	1.7	5.4	1.7	5.6	1.8	5.8	1.9	6.0

Table 15G. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	3.0 ≤ CCC < 3.1		3.1 ≤ CCC < 3.2		3.2 ≤ CCC < 3.3		3.3 ≤ CCC < 3.4		3.4 ≤ CCC < 3.5	
	AMEL	AWEL								
CV										
0.1	3.0	3.5	3.1	3.6	3.2	3.7	3.3	3.9	3.4	4.0
0.2	2.9	4.1	3.0	4.2	3.1	4.3	3.2	4.5	3.3	4.6
0.3	2.9	4.6	3.0	4.8	3.1	4.9	3.2	5.1	3.3	5.2
0.4	2.9	5.2	2.9	5.4	3.0	5.5	3.1	5.7	3.2	5.9
0.5	2.8	5.8	2.9	5.9	3.0	6.1	3.1	6.3	3.2	6.5
0.6	2.8	6.3	2.9	6.5	3.0	6.7	3.1	6.9	3.2	7.1
0.7	2.8	6.7	2.8	7.0	2.9	7.2	3.0	7.4	3.1	7.6
0.8	2.7	7.2	2.8	7.4	2.9	7.6	3.0	7.9	3.1	8.1
0.9	2.7	7.5	2.8	7.8	2.9	8.0	3.0	8.3	3.0	8.5
1.0	2.7	7.8	2.7	8.1	2.8	8.3	2.9	8.6	3.0	8.9
1.1	2.6	8.1	2.7	8.3	2.8	8.6	2.9	8.9	3.0	9.1
1.2	2.6	8.3	2.7	8.5	2.8	8.8	2.8	9.1	2.9	9.4
1.3	2.6	8.4	2.6	8.7	2.7	9.0	2.8	9.3	2.9	9.5
1.4	2.5	8.5	2.6	8.8	2.7	9.1	2.8	9.4	2.9	9.7
1.5	2.5	8.6	2.6	8.9	2.7	9.2	2.7	9.4	2.8	9.7
1.6	2.5	8.6	2.6	8.9	2.6	9.2	2.7	9.5	2.8	9.8
1.7	2.4	8.6	2.5	8.9	2.6	9.2	2.7	9.5	2.8	9.8
1.8	2.4	8.6	2.5	8.9	2.6	9.2	2.7	9.5	2.7	9.7
1.9	2.4	8.6	2.5	8.8	2.5	9.1	2.6	9.4	2.7	9.7
2.0	2.4	8.5	2.4	8.8	2.5	9.1	2.6	9.3	2.7	9.6
2.1	2.3	8.4	2.4	8.7	2.5	9.0	2.6	9.3	2.6	9.5
2.2	2.3	8.3	2.4	8.6	2.5	8.9	2.5	9.2	2.6	9.4
2.3	2.3	8.2	2.4	8.5	2.4	8.8	2.5	9.1	2.6	9.3
2.4	2.3	8.1	2.3	8.4	2.4	8.7	2.5	8.9	2.6	9.2
2.5	2.2	8.0	2.3	8.3	2.4	8.6	2.5	8.8	2.5	9.1
2.6	2.2	7.9	2.3	8.2	2.4	8.4	2.4	8.7	2.5	9.0
2.7	2.2	7.8	2.3	8.0	2.3	8.3	2.4	8.6	2.5	8.8
2.8	2.2	7.7	2.2	7.9	2.3	8.2	2.4	8.4	2.4	8.7
2.9	2.1	7.5	2.2	7.8	2.3	8.0	2.4	8.3	2.4	8.5
3.0	2.1	7.4	2.2	7.7	2.3	7.9	2.3	8.2	2.4	8.4
3.1	2.1	7.3	2.2	7.5	2.2	7.8	2.3	8.0	2.4	8.3
3.2	2.1	7.2	2.1	7.4	2.2	7.6	2.3	7.9	2.4	8.1
3.3	2.1	7.1	2.1	7.3	2.2	7.5	2.3	7.8	2.3	8.0
3.4	2.0	6.9	2.1	7.2	2.2	7.4	2.2	7.6	2.3	7.9
3.5	2.0	6.8	2.1	7.0	2.1	7.3	2.2	7.5	2.3	7.7
3.6	2.0	6.7	2.1	6.9	2.1	7.1	2.2	7.4	2.3	7.6
3.7	2.0	6.6	2.0	6.8	2.1	7.0	2.2	7.2	2.2	7.5
3.8	2.0	6.5	2.0	6.7	2.1	6.9	2.2	7.1	2.2	7.3
3.9	1.9	6.4	2.0	6.6	2.1	6.8	2.1	7.0	2.2	7.2
4.0	1.9	6.2	2.0	6.5	2.1	6.7	2.1	6.9	2.2	7.1

Table 15H. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L) CV	3.5 ≤ CCC < 3.6		3.6 ≤ CCC < 3.7		3.7 ≤ CCC < 3.8		3.8 ≤ CCC < 3.9		3.9 ≤ CCC < 4.0	
	AMEL	AWEL								
0.1	3.5	4.1	3.6	4.2	3.7	4.3	3.8	4.4	3.9	4.6
0.2	3.4	4.7	3.5	4.9	3.6	5.0	3.7	5.1	3.8	5.3
0.3	3.4	5.4	3.5	5.6	3.6	5.7	3.7	5.9	3.8	6.0
0.4	3.3	6.1	3.4	6.2	3.5	6.4	3.6	6.6	3.7	6.8
0.5	3.3	6.7	3.4	6.9	3.5	7.1	3.6	7.3	3.7	7.5
0.6	3.2	7.3	3.3	7.5	3.4	7.7	3.5	7.9	3.6	8.2
0.7	3.2	7.9	3.3	8.1	3.4	8.3	3.5	8.5	3.6	8.8
0.8	3.2	8.4	3.3	8.6	3.4	8.8	3.4	9.1	3.5	9.3
0.9	3.1	8.8	3.2	9.0	3.3	9.3	3.4	9.5	3.5	9.8
1.0	3.1	9.1	3.2	9.4	3.3	9.7	3.4	9.9	3.4	10
1.1	3.1	9.4	3.1	9.7	3.2	10	3.3	10	3.4	10
1.2	3.0	9.6	3.1	9.9	3.2	10	3.3	10	3.4	11
1.3	3.0	9.8	3.1	10	3.2	10	3.2	11	3.3	11
1.4	2.9	9.9	3.0	10	3.1	11	3.2	11	3.3	11
1.5	2.9	10	3.0	10	3.1	11	3.2	11	3.2	11
1.6	2.9	10	3.0	10	3.0	11	3.1	11	3.2	11
1.7	2.8	10	2.9	10	3.0	11	3.1	11	3.2	11
1.8	2.8	10	2.9	10	3.0	11	3.1	11	3.1	11
1.9	2.8	10	2.9	10	2.9	11	3.0	11	3.1	11
2.0	2.8	9.9	2.8	10	2.9	10	3.0	11	3.1	11
2.1	2.7	9.8	2.8	10	2.9	10	3.0	11	3.0	11
2.2	2.7	9.7	2.8	10	2.8	10	2.9	11	3.0	11
2.3	2.7	9.6	2.7	9.9	2.8	10	2.9	10	3.0	11
2.4	2.6	9.5	2.7	9.8	2.8	10	2.9	10	2.9	11
2.5	2.6	9.4	2.7	9.6	2.8	9.9	2.8	10	2.9	10
2.6	2.6	9.2	2.6	9.5	2.7	9.7	2.8	10	2.9	10
2.7	2.5	9.1	2.6	9.3	2.7	9.6	2.8	9.9	2.8	10
2.8	2.5	8.9	2.6	9.2	2.7	9.5	2.7	9.7	2.8	10
2.9	2.5	8.8	2.6	9.0	2.6	9.3	2.7	9.6	2.8	9.8
3.0	2.5	8.7	2.5	8.9	2.6	9.1	2.7	9.4	2.8	9.6
3.1	2.4	8.5	2.5	8.8	2.6	9.0	2.7	9.2	2.7	9.5
3.2	2.4	8.4	2.5	8.6	2.6	8.8	2.6	9.1	2.7	9.3
3.3	2.4	8.2	2.5	8.5	2.5	8.7	2.6	8.9	2.7	9.2
3.4	2.4	8.1	2.4	8.3	2.5	8.5	2.6	8.8	2.6	9.0
3.5	2.3	7.9	2.4	8.2	2.5	8.4	2.6	8.6	2.6	8.9
3.6	2.3	7.8	2.4	8.0	2.5	8.3	2.5	8.5	2.6	8.7
3.7	2.3	7.7	2.4	7.9	2.4	8.1	2.5	8.3	2.6	8.6
3.8	2.3	7.5	2.3	7.8	2.4	8.0	2.5	8.2	2.5	8.4
3.9	2.3	7.4	2.3	7.6	2.4	7.8	2.5	8.1	2.5	8.3
4.0	2.2	7.3	2.3	7.5	2.4	7.7	2.4	7.9	2.5	8.1

Table 15l. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	4.0 ≤ CCC < 4.1		4.1 ≤ CCC < 4.2		4.2 ≤ CCC < 4.3		4.3 ≤ CCC < 4.4		4.4 ≤ CCC < 4.5	
	AMEL	AWEL								
CV										
0.1	4.0	4.7	4.0	4.8	4.1	4.9	4.2	5.0	4.3	5.2
0.2	3.9	5.4	4.0	5.6	4.1	5.7	4.2	5.8	4.3	6.0
0.3	3.9	6.2	3.9	6.3	4.0	6.5	4.1	6.6	4.2	6.8
0.4	3.8	6.9	3.9	7.1	4.0	7.3	4.1	7.5	4.2	7.6
0.5	3.8	7.7	3.9	7.9	3.9	8.1	4.0	8.2	4.1	8.4
0.6	3.7	8.4	3.8	8.6	3.9	8.8	4.0	9.0	4.1	9.2
0.7	3.7	9.0	3.8	9.2	3.9	9.4	3.9	9.7	4.0	9.9
0.8	3.6	9.5	3.7	9.8	3.8	10	3.9	10	4.0	11
0.9	3.6	10	3.7	10	3.8	11	3.8	11	3.9	11
1.0	3.5	10	3.6	11	3.7	11	3.8	11	3.9	11
1.1	3.5	11	3.6	11	3.7	11	3.8	12	3.8	12
1.2	3.5	11	3.5	11	3.6	12	3.7	12	3.8	12
1.3	3.4	11	3.5	11	3.6	12	3.7	12	3.8	12
1.4	3.4	11	3.5	12	3.5	12	3.6	12	3.7	12
1.5	3.3	11	3.4	12	3.5	12	3.6	12	3.7	13
1.6	3.3	11	3.4	12	3.5	12	3.5	12	3.6	13
1.7	3.3	11	3.3	12	3.4	12	3.5	12	3.6	13
1.8	3.2	11	3.3	12	3.4	12	3.5	12	3.5	13
1.9	3.2	11	3.3	12	3.3	12	3.4	12	3.5	13
2.0	3.1	11	3.2	12	3.3	12	3.4	12	3.5	12
2.1	3.1	11	3.2	12	3.3	12	3.3	12	3.4	12
2.2	3.1	11	3.2	11	3.2	12	3.3	12	3.4	12
2.3	3.0	11	3.1	11	3.2	12	3.3	12	3.3	12
2.4	3.0	11	3.1	11	3.2	11	3.2	12	3.3	12
2.5	3.0	11	3.0	11	3.1	11	3.2	11	3.3	12
2.6	2.9	11	3.0	11	3.1	11	3.2	11	3.2	12
2.7	2.9	10	3.0	11	3.1	11	3.1	11	3.2	11
2.8	2.9	10	3.0	10	3.0	11	3.1	11	3.2	11
2.9	2.9	10	2.9	10	3.0	11	3.1	11	3.1	11
3.0	2.8	9.9	2.9	10	3.0	10	3.0	11	3.1	11
3.1	2.8	9.7	2.9	10	2.9	10	3.0	10	3.1	11
3.2	2.8	9.6	2.8	9.8	2.9	10	3.0	10	3.0	11
3.3	2.7	9.4	2.8	9.6	2.9	9.9	2.9	10	3.0	10
3.4	2.7	9.2	2.8	9.5	2.8	9.7	2.9	9.9	3.0	10
3.5	2.7	9.1	2.8	9.3	2.8	9.5	2.9	9.8	3.0	10
3.6	2.7	8.9	2.7	9.1	2.8	9.4	2.9	9.6	2.9	9.8
3.7	2.6	8.8	2.7	9.0	2.8	9.2	2.8	9.4	2.9	9.6
3.8	2.6	8.6	2.7	8.8	2.7	9.1	2.8	9.3	2.9	9.5
3.9	2.6	8.5	2.7	8.7	2.7	8.9	2.8	9.1	2.8	9.3
4.0	2.6	8.3	2.6	8.5	2.7	8.7	2.8	9.0	2.8	9.2

Table 15J. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L) CV	4.5 ≤ CCC < 4.6		4.6 ≤ CCC < 4.7		4.7 ≤ CCC < 4.8		4.8 ≤ CCC < 4.9		4.9 ≤ CCC < 5.0	
	AMEL	AWEL								
0.1	4.4	5.3	4.5	5.4	4.6	5.5	4.7	5.6	4.8	5.7
0.2	4.4	6.1	4.5	6.2	4.6	6.4	4.7	6.5	4.8	6.6
0.3	4.3	6.9	4.4	7.1	4.5	7.3	4.6	7.4	4.7	7.6
0.4	4.3	7.8	4.4	8.0	4.5	8.1	4.6	8.3	4.7	8.5
0.5	4.2	8.6	4.3	8.8	4.4	9.0	4.5	9.2	4.6	9.4
0.6	4.2	9.4	4.3	9.6	4.4	9.8	4.5	10	4.5	10
0.7	4.1	10	4.2	10	4.3	11	4.4	11	4.5	11
0.8	4.1	11	4.2	11	4.3	11	4.3	11	4.4	12
0.9	4.0	11	4.1	12	4.2	12	4.3	12	4.4	12
1.0	4.0	12	4.1	12	4.2	12	4.2	13	4.3	13
1.1	3.9	12	4.0	12	4.1	13	4.2	13	4.3	13
1.2	3.9	12	4.0	13	4.1	13	4.1	13	4.2	14
1.3	3.8	13	3.9	13	4.0	13	4.1	13	4.2	14
1.4	3.8	13	3.9	13	4.0	13	4.0	14	4.1	14
1.5	3.7	13	3.8	13	3.9	13	4.0	14	4.1	14
1.6	3.7	13	3.8	13	3.9	13	4.0	14	4.0	14
1.7	3.7	13	3.7	13	3.8	14	3.9	14	4.0	14
1.8	3.6	13	3.7	13	3.8	13	3.9	14	3.9	14
1.9	3.6	13	3.7	13	3.7	13	3.8	14	3.9	14
2.0	3.5	13	3.6	13	3.7	13	3.8	14	3.9	14
2.1	3.5	13	3.6	13	3.7	13	3.7	13	3.8	14
2.2	3.5	12	3.5	13	3.6	13	3.7	13	3.8	14
2.3	3.4	12	3.5	13	3.6	13	3.6	13	3.7	13
2.4	3.4	12	3.5	12	3.5	13	3.6	13	3.7	13
2.5	3.3	12	3.4	12	3.5	13	3.6	13	3.6	13
2.6	3.3	12	3.4	12	3.5	12	3.5	13	3.6	13
2.7	3.3	12	3.3	12	3.4	12	3.5	12	3.6	13
2.8	3.2	11	3.3	12	3.4	12	3.5	12	3.5	13
2.9	3.2	11	3.3	12	3.4	12	3.4	12	3.5	12
3.0	3.2	11	3.2	11	3.3	12	3.4	12	3.5	12
3.1	3.1	11	3.2	11	3.3	11	3.4	12	3.4	12
3.2	3.1	11	3.2	11	3.2	11	3.3	11	3.4	12
3.3	3.1	11	3.1	11	3.2	11	3.3	11	3.4	12
3.4	3.1	10	3.1	11	3.2	11	3.3	11	3.3	11
3.5	3.0	10	3.1	10	3.2	11	3.2	11	3.3	11
3.6	3.0	10	3.1	10	3.1	10	3.2	11	3.3	11
3.7	3.0	9.9	3.0	10	3.1	10	3.2	11	3.2	11
3.8	2.9	9.7	3.0	9.9	3.1	10	3.1	10	3.2	11
3.9	2.9	9.5	3.0	9.7	3.0	10	3.1	10	3.2	10
4.0	2.9	9.4	2.9	9.6	3.0	9.8	3.1	10	3.1	10

Table 15K. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L) CV	5.0 ≤ CCC < 5.1		5.1 ≤ CCC < 5.2		5.2 ≤ CCC < 5.3		5.3 ≤ CCC < 5.4		5.4 ≤ CCC < 5.5	
	AMEL	AWEL								
0.1	4.9	5.9	5.0	6.0	5.1	6.1	5.2	6.2	5.3	6.3
0.2	4.9	6.8	5.0	6.9	5.1	7.0	5.2	7.2	5.3	7.3
0.3	4.8	7.7	4.9	7.9	5.0	8.0	5.1	8.2	5.2	8.3
0.4	4.8	8.7	4.9	8.8	4.9	9.0	5.0	9.2	5.1	9.4
0.5	4.7	9.6	4.8	9.8	4.9	10	5.0	10	5.1	10
0.6	4.6	10	4.7	11	4.8	11	4.9	11	5.0	11
0.7	4.6	11	4.7	11	4.8	12	4.9	12	5.0	12
0.8	4.5	12	4.6	12	4.7	12	4.8	13	4.9	13
0.9	4.5	13	4.6	13	4.7	13	4.7	13	4.8	14
1.0	4.4	13	4.5	13	4.6	14	4.7	14	4.8	14
1.1	4.4	13	4.5	14	4.5	14	4.6	14	4.7	15
1.2	4.3	14	4.4	14	4.5	14	4.6	15	4.7	15
1.3	4.3	14	4.3	14	4.4	15	4.5	15	4.6	15
1.4	4.2	14	4.3	14	4.4	15	4.5	15	4.5	15
1.5	4.2	14	4.2	15	4.3	15	4.4	15	4.5	15
1.6	4.1	14	4.2	15	4.3	15	4.4	15	4.4	16
1.7	4.1	14	4.1	15	4.2	15	4.3	15	4.4	16
1.8	4.0	14	4.1	15	4.2	15	4.3	15	4.3	15
1.9	4.0	14	4.1	15	4.1	15	4.2	15	4.3	15
2.0	3.9	14	4.0	14	4.1	15	4.2	15	4.2	15
2.1	3.9	14	4.0	14	4.0	15	4.1	15	4.2	15
2.2	3.8	14	3.9	14	4.0	14	4.1	15	4.1	15
2.3	3.8	14	3.9	14	4.0	14	4.0	15	4.1	15
2.4	3.8	14	3.8	14	3.9	14	4.0	14	4.1	15
2.5	3.7	13	3.8	14	3.9	14	3.9	14	4.0	14
2.6	3.7	13	3.8	13	3.8	14	3.9	14	4.0	14
2.7	3.6	13	3.7	13	3.8	13	3.9	14	3.9	14
2.8	3.6	13	3.7	13	3.7	13	3.8	14	3.9	14
2.9	3.6	13	3.6	13	3.7	13	3.8	13	3.8	14
3.0	3.5	12	3.6	13	3.7	13	3.7	13	3.8	13
3.1	3.5	12	3.6	12	3.6	13	3.7	13	3.8	13
3.2	3.5	12	3.5	12	3.6	12	3.7	13	3.7	13
3.3	3.4	12	3.5	12	3.6	12	3.6	12	3.7	13
3.4	3.4	12	3.5	12	3.5	12	3.6	12	3.7	12
3.5	3.4	11	3.4	12	3.5	12	3.6	12	3.6	12
3.6	3.3	11	3.4	11	3.5	12	3.5	12	3.6	12
3.7	3.3	11	3.4	11	3.4	11	3.5	12	3.6	12
3.8	3.3	11	3.3	11	3.4	11	3.5	11	3.5	12
3.9	3.2	11	3.3	11	3.4	11	3.4	11	3.5	11
4.0	3.2	10	3.3	11	3.3	11	3.4	11	3.5	11

Table 15L. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	5.5 ≤ CCC < 5.6		5.6 ≤ CCC < 5.7		5.7 ≤ CCC < 5.8		5.8 ≤ CCC < 5.9		5.9 ≤ CCC < 6.0	
	AMEL	AWEL								
CV										
0.1	5.4	6.4	5.5	6.6	5.6	6.7	5.7	6.8	5.8	6.9
0.2	5.4	7.4	5.5	7.6	5.6	7.7	5.7	7.9	5.8	8.0
0.3	5.3	8.5	5.4	8.6	5.5	8.8	5.6	9.0	5.7	9.1
0.4	5.2	9.5	5.3	9.7	5.4	9.9	5.5	10	5.6	10
0.5	5.2	11	5.3	11	5.4	11	5.5	11	5.5	11
0.6	5.1	11	5.2	12	5.3	12	5.4	12	5.5	12
0.7	5.0	12	5.1	13	5.2	13	5.3	13	5.4	13
0.8	5.0	13	5.1	13	5.2	14	5.3	14	5.3	14
0.9	4.9	14	5.0	14	5.1	14	5.2	15	5.3	15
1.0	4.9	14	5.0	15	5.0	15	5.1	15	5.2	15
1.1	4.8	15	4.9	15	5.0	15	5.1	16	5.2	16
1.2	4.7	15	4.8	15	4.9	16	5.0	16	5.1	16
1.3	4.7	15	4.8	16	4.9	16	4.9	16	5.0	17
1.4	4.6	16	4.7	16	4.8	16	4.9	16	5.0	17
1.5	4.6	16	4.7	16	4.7	16	4.8	17	4.9	17
1.6	4.5	16	4.6	16	4.7	16	4.8	17	4.9	17
1.7	4.5	16	4.6	16	4.6	16	4.7	17	4.8	17
1.8	4.4	16	4.5	16	4.6	16	4.7	17	4.7	17
1.9	4.4	16	4.5	16	4.5	16	4.6	17	4.7	17
2.0	4.3	16	4.4	16	4.5	16	4.6	16	4.6	17
2.1	4.3	15	4.4	16	4.4	16	4.5	16	4.6	17
2.2	4.2	15	4.3	16	4.4	16	4.5	16	4.5	16
2.3	4.2	15	4.3	15	4.3	16	4.4	16	4.5	16
2.4	4.1	15	4.2	15	4.3	15	4.4	16	4.4	16
2.5	4.1	15	4.2	15	4.2	15	4.3	16	4.4	16
2.6	4.0	14	4.1	15	4.2	15	4.3	15	4.3	16
2.7	4.0	14	4.1	15	4.1	15	4.2	15	4.3	15
2.8	4.0	14	4.0	14	4.1	15	4.2	15	4.2	15
2.9	3.9	14	4.0	14	4.1	14	4.1	15	4.2	15
3.0	3.9	14	4.0	14	4.0	14	4.1	14	4.2	15
3.1	3.8	13	3.9	14	4.0	14	4.1	14	4.1	14
3.2	3.8	13	3.9	13	3.9	14	4.0	14	4.1	14
3.3	3.8	13	3.8	13	3.9	13	4.0	14	4.0	14
3.4	3.7	13	3.8	13	3.9	13	3.9	13	4.0	14
3.5	3.7	12	3.8	13	3.8	13	3.9	13	4.0	13
3.6	3.7	12	3.7	12	3.8	13	3.9	13	3.9	13
3.7	3.6	12	3.7	12	3.8	13	3.8	13	3.9	13
3.8	3.6	12	3.7	12	3.7	12	3.8	13	3.8	13
3.9	3.6	12	3.6	12	3.7	12	3.7	12	3.8	13
4.0	3.5	11	3.6	12	3.7	12	3.7	12	3.8	12

Table 15M. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L)	6.0 ≤ CCC < 6.1		6.1 ≤ CCC < 6.2		6.2 ≤ CCC < 6.3		6.3 ≤ CCC < 6.4		6.4 ≤ CCC < 6.5	
	AMEL	AWEL								
CV										
0.1	5.9	7.0	6.0	7.1	6.1	7.3	6.2	7.4	6.3	7.5
0.2	5.9	8.1	6.0	8.3	6.0	8.4	6.1	8.5	6.2	8.7
0.3	5.8	9.3	5.9	9.4	6.0	9.6	6.1	9.7	6.2	9.9
0.4	5.7	10	5.8	11	5.9	11	6.0	11	6.1	11
0.5	5.6	12	5.7	12	5.8	12	5.9	12	6.0	12
0.6	5.6	13	5.7	13	5.8	13	5.8	13	5.9	13
0.7	5.5	13	5.6	14	5.7	14	5.8	14	5.9	14
0.8	5.4	14	5.5	15	5.6	15	5.7	15	5.8	15
0.9	5.4	15	5.5	15	5.5	16	5.6	16	5.7	16
1.0	5.3	16	5.4	16	5.5	16	5.6	16	5.7	17
1.1	5.2	16	5.3	16	5.4	17	5.5	17	5.6	17
1.2	5.2	17	5.3	17	5.3	17	5.4	17	5.5	18
1.3	5.1	17	5.2	17	5.3	17	5.4	18	5.5	18
1.4	5.1	17	5.1	17	5.2	18	5.3	18	5.4	18
1.5	5.0	17	5.1	17	5.2	18	5.2	18	5.3	18
1.6	4.9	17	5.0	18	5.1	18	5.2	18	5.3	18
1.7	4.9	17	5.0	18	5.0	18	5.1	18	5.2	18
1.8	4.8	17	4.9	17	5.0	18	5.1	18	5.1	18
1.9	4.8	17	4.8	17	4.9	18	5.0	18	5.1	18
2.0	4.7	17	4.8	17	4.9	18	5.0	18	5.0	18
2.1	4.7	17	4.7	17	4.8	17	4.9	18	5.0	18
2.2	4.6	17	4.7	17	4.8	17	4.8	17	4.9	18
2.3	4.6	16	4.6	17	4.7	17	4.8	17	4.9	18
2.4	4.5	16	4.6	17	4.7	17	4.7	17	4.8	17
2.5	4.5	16	4.5	16	4.6	17	4.7	17	4.8	17
2.6	4.4	16	4.5	16	4.6	16	4.6	17	4.7	17
2.7	4.4	16	4.4	16	4.5	16	4.6	16	4.7	17
2.8	4.3	15	4.4	16	4.5	16	4.5	16	4.6	16
2.9	4.3	15	4.3	15	4.4	16	4.5	16	4.6	16
3.0	4.2	15	4.3	15	4.4	15	4.4	16	4.5	16
3.1	4.2	15	4.3	15	4.3	15	4.4	15	4.5	16
3.2	4.1	14	4.2	15	4.3	15	4.4	15	4.4	15
3.3	4.1	14	4.2	14	4.2	15	4.3	15	4.4	15
3.4	4.1	14	4.1	14	4.2	14	4.3	15	4.3	15
3.5	4.0	14	4.1	14	4.2	14	4.2	14	4.3	15
3.6	4.0	13	4.1	14	4.1	14	4.2	14	4.3	14
3.7	4.0	13	4.0	13	4.1	14	4.1	14	4.2	14
3.8	3.9	13	4.0	13	4.0	13	4.1	14	4.2	14
3.9	3.9	13	3.9	13	4.0	13	4.1	13	4.1	14
4.0	3.8	12	3.9	13	4.0	13	4.0	13	4.1	13

Table 15N. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CCC

CCC (mg/L) CV	6.5 ≤ CCC < 6.6		6.6 ≤ CCC	
	AMEL	AWEL	AMEL	AWEL
0.1	6.4	7.6	6.5	7.7
0.2	6.3	8.8	6.4	8.9
0.3	6.3	10	6.4	10
0.4	6.2	11	6.3	11
0.5	6.1	12	6.2	13
0.6	6.0	14	6.1	14
0.7	6.0	15	6.1	15
0.8	5.9	16	6.0	16
0.9	5.8	16	5.9	17
1.0	5.7	17	5.8	17
1.1	5.7	17	5.8	18
1.2	5.6	18	5.7	18
1.3	5.5	18	5.6	19
1.4	5.5	18	5.6	19
1.5	5.4	19	5.5	19
1.6	5.3	19	5.4	19
1.7	5.3	19	5.4	19
1.8	5.2	19	5.3	19
1.9	5.2	19	5.2	19
2.0	5.1	18	5.2	19
2.1	5.1	18	5.1	19
2.2	5.0	18	5.1	18
2.3	4.9	18	5.0	18
2.4	4.9	18	5.0	18
2.5	4.8	17	4.9	18
2.6	4.8	17	4.9	17
2.7	4.7	17	4.8	17
2.8	4.7	17	4.8	17
2.9	4.6	16	4.7	17
3.0	4.6	16	4.7	16
3.1	4.5	16	4.6	16
3.2	4.5	16	4.6	16
3.3	4.4	15	4.5	16
3.4	4.4	15	4.5	15
3.5	4.4	15	4.4	15
3.6	4.3	15	4.4	15
3.7	4.3	14	4.3	14
3.8	4.2	14	4.3	14
3.9	4.2	14	4.3	14
4.0	4.2	14	4.2	14

Table 16A. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CMC (Salmonids Present)

CMC (mg/L)	8.11		6.77		5.62		4.64		3.83		3.15	
	AMEL	AWEL										
0.1	7.0	7.9	5.8	6.6	4.9	5.5	4.0	4.5	3.3	3.7	2.7	3.1
0.2	6.1	7.7	5.1	6.4	4.2	5.3	3.5	4.4	2.9	3.6	2.4	3.0
0.3	5.4	7.5	4.5	6.3	3.7	5.2	3.1	4.3	2.6	3.5	2.1	2.9
0.4	4.8	7.3	4.0	6.1	3.4	5.1	2.8	4.2	2.3	3.4	1.9	2.8
0.5	4.4	7.1	3.7	6.0	3.0	4.9	2.5	4.1	2.1	3.4	1.7	2.8
0.6	4.0	7.0	3.4	5.8	2.8	4.8	2.3	4.0	1.9	3.3	1.6	2.7
0.7	3.8	6.8	3.1	5.7	2.6	4.7	2.2	3.9	1.8	3.2	1.5	2.7
0.8	3.5	6.7	3.0	5.6	2.5	4.6	2.0	3.8	1.7	3.2	1.4	2.6
0.9	3.4	6.6	2.8	5.5	2.3	4.6	1.9	3.8	1.6	3.1	1.3	2.6
1.0	3.2	6.5	2.7	5.4	2.2	4.5	1.8	3.7	1.5	3.1	1.2	2.5
1.1	3.1	6.4	2.6	5.3	2.1	4.4	1.8	3.6	1.5	3.0	1.2	2.5
1.2	3.0	6.3	2.5	5.2	2.1	4.3	1.7	3.6	1.4	3.0	1.2	2.4
1.3	2.9	6.2	2.4	5.2	2.0	4.3	1.7	3.5	1.4	2.9	1.1	2.4
1.4	2.9	6.1	2.4	5.1	2.0	4.2	1.6	3.5	1.4	2.9	1.1	2.4
1.5	2.8	6.0	2.3	5.0	1.9	4.2	1.6	3.5	1.3	2.9	1.1	2.3
1.6	2.8	6.0	2.3	5.0	1.9	4.1	1.6	3.4	1.3	2.8	1.1	2.3
1.7	2.7	5.9	2.3	4.9	1.9	4.1	1.6	3.4	1.3	2.8	1.1	2.3
1.8	2.7	5.8	2.2	4.9	1.9	4.1	1.5	3.3	1.3	2.8	1.0	2.3
1.9	2.7	5.8	2.2	4.8	1.8	4.0	1.5	3.3	1.3	2.7	1.0	2.3
2.0	2.6	5.7	2.2	4.8	1.8	4.0	1.5	3.3	1.2	2.7	1.0	2.2
2.1	2.6	5.7	2.2	4.8	1.8	3.9	1.5	3.3	1.2	2.7	1.0	2.2
2.2	2.6	5.7	2.2	4.7	1.8	3.9	1.5	3.2	1.2	2.7	1.0	2.2
2.3	2.6	5.6	2.2	4.7	1.8	3.9	1.5	3.2	1.2	2.6	1.0	2.2
2.4	2.6	5.6	2.1	4.6	1.8	3.9	1.5	3.2	1.2	2.6	1.0	2.2
2.5	2.5	5.5	2.1	4.6	1.8	3.8	1.5	3.2	1.2	2.6	0.99	2.1
2.6	2.5	5.5	2.1	4.6	1.8	3.8	1.4	3.1	1.2	2.6	0.98	2.1
2.7	2.5	5.5	2.1	4.6	1.7	3.8	1.4	3.1	1.2	2.6	0.98	2.1
2.8	2.5	5.4	2.1	4.5	1.7	3.8	1.4	3.1	1.2	2.6	0.97	2.1
2.9	2.5	5.4	2.1	4.5	1.7	3.7	1.4	3.1	1.2	2.5	0.97	2.1
3.0	2.5	5.4	2.1	4.5	1.7	3.7	1.4	3.1	1.2	2.5	0.97	2.1
3.1	2.5	5.3	2.1	4.5	1.7	3.7	1.4	3.1	1.2	2.5	0.96	2.1
3.2	2.5	5.3	2.1	4.4	1.7	3.7	1.4	3.0	1.2	2.5	0.96	2.1
3.3	2.5	5.3	2.1	4.4	1.7	3.7	1.4	3.0	1.2	2.5	0.96	2.1
3.4	2.5	5.3	2.0	4.4	1.7	3.6	1.4	3.0	1.2	2.5	0.95	2.0
3.5	2.4	5.2	2.0	4.4	1.7	3.6	1.4	3.0	1.2	2.5	0.95	2.0
3.6	2.4	5.2	2.0	4.4	1.7	3.6	1.4	3.0	1.1	2.5	0.95	2.0
3.7	2.4	5.2	2.0	4.3	1.7	3.6	1.4	3.0	1.1	2.5	0.94	2.0
3.8	2.4	5.2	2.0	4.3	1.7	3.6	1.4	3.0	1.1	2.4	0.94	2.0
3.9	2.4	5.2	2.0	4.3	1.7	3.6	1.4	2.9	1.1	2.4	0.94	2.0
4.0	2.4	5.1	2.0	4.3	1.7	3.6	1.4	2.9	1.1	2.4	0.93	2.0

Table 16B. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CMC (Salmonids Present)

CMC (mg/L)	2.59		2.14		1.77		1.47		1.23		1.04		0.88	
	AMEL	AWEL												
0.1	7.0	7.9	5.8	6.6	4.9	5.5	4.0	4.5	3.3	3.7	2.7	3.1	0.76	0.86
0.2	6.1	7.7	5.1	6.4	4.2	5.3	3.5	4.4	2.9	3.6	2.4	3.0	0.66	0.83
0.3	5.4	7.5	4.5	6.3	3.7	5.2	3.1	4.3	2.6	3.5	2.1	2.9	0.59	0.81
0.4	4.8	7.3	4.0	6.1	3.4	5.1	2.8	4.2	2.3	3.4	1.9	2.8	0.53	0.79
0.5	4.4	7.1	3.7	6.0	3.0	4.9	2.5	4.1	2.1	3.4	1.7	2.8	0.48	0.77
0.6	4.0	7.0	3.4	5.8	2.8	4.8	2.3	4.0	1.9	3.3	1.6	2.7	0.44	0.76
0.7	3.8	6.8	3.1	5.7	2.6	4.7	2.2	3.9	1.8	3.2	1.5	2.7	0.41	0.74
0.8	3.5	6.7	3.0	5.6	2.5	4.6	2.0	3.8	1.7	3.2	1.4	2.6	0.38	0.73
0.9	3.4	6.6	2.8	5.5	2.3	4.6	1.9	3.8	1.6	3.1	1.3	2.6	0.36	0.71
1.0	3.2	6.5	2.7	5.4	2.2	4.5	1.8	3.7	1.5	3.1	1.2	2.5	0.35	0.70
1.1	3.1	6.4	2.6	5.3	2.1	4.4	1.8	3.6	1.5	3.0	1.2	2.5	0.34	0.69
1.2	3.0	6.3	2.5	5.2	2.1	4.3	1.7	3.6	1.4	3.0	1.2	2.4	0.33	0.68
1.3	2.9	6.2	2.4	5.2	2.0	4.3	1.7	3.5	1.4	2.9	1.1	2.4	0.32	0.67
1.4	2.9	6.1	2.4	5.1	2.0	4.2	1.6	3.5	1.4	2.9	1.1	2.4	0.31	0.66
1.5	2.8	6.0	2.3	5.0	1.9	4.2	1.6	3.5	1.3	2.9	1.1	2.3	0.30	0.65
1.6	2.8	6.0	2.3	5.0	1.9	4.1	1.6	3.4	1.3	2.8	1.1	2.3	0.30	0.65
1.7	2.7	5.9	2.3	4.9	1.9	4.1	1.6	3.4	1.3	2.8	1.1	2.3	0.30	0.64
1.8	2.7	5.8	2.2	4.9	1.9	4.1	1.5	3.3	1.3	2.8	1.0	2.3	0.29	0.63
1.9	2.7	5.8	2.2	4.8	1.8	4.0	1.5	3.3	1.3	2.7	1.0	2.3	0.29	0.63
2.0	2.6	5.7	2.2	4.8	1.8	4.0	1.5	3.3	1.2	2.7	1.0	2.2	0.29	0.62
2.1	2.6	5.7	2.2	4.8	1.8	3.9	1.5	3.3	1.2	2.7	1.0	2.2	0.28	0.62
2.2	2.6	5.7	2.2	4.7	1.8	3.9	1.5	3.2	1.2	2.7	1.0	2.2	0.28	0.61
2.3	2.6	5.6	2.2	4.7	1.8	3.9	1.5	3.2	1.2	2.6	1.0	2.2	0.28	0.61
2.4	2.6	5.6	2.1	4.6	1.8	3.9	1.5	3.2	1.2	2.6	1.0	2.2	0.28	0.60
2.5	2.5	5.5	2.1	4.6	1.8	3.8	1.5	3.2	1.2	2.6	0.99	2.1	0.28	0.60
2.6	2.5	5.5	2.1	4.6	1.8	3.8	1.4	3.1	1.2	2.6	0.98	2.1	0.27	0.60
2.7	2.5	5.5	2.1	4.6	1.7	3.8	1.4	3.1	1.2	2.6	0.98	2.1	0.27	0.59
2.8	2.5	5.4	2.1	4.5	1.7	3.8	1.4	3.1	1.2	2.6	0.97	2.1	0.27	0.59
2.9	2.5	5.4	2.1	4.5	1.7	3.7	1.4	3.1	1.2	2.5	0.97	2.1	0.27	0.59
3.0	2.5	5.4	2.1	4.5	1.7	3.7	1.4	3.1	1.2	2.5	0.97	2.1	0.27	0.58
3.1	2.5	5.3	2.1	4.5	1.7	3.7	1.4	3.1	1.2	2.5	0.96	2.1	0.27	0.58
3.2	2.5	5.3	2.1	4.4	1.7	3.7	1.4	3.0	1.2	2.5	0.96	2.1	0.27	0.58
3.3	2.5	5.3	2.1	4.4	1.7	3.7	1.4	3.0	1.2	2.5	0.96	2.1	0.27	0.57
3.4	2.5	5.3	2.0	4.4	1.7	3.6	1.4	3.0	1.2	2.5	0.95	2.0	0.27	0.57
3.5	2.4	5.2	2.0	4.4	1.7	3.6	1.4	3.0	1.2	2.5	0.95	2.0	0.26	0.57
3.6	2.4	5.2	2.0	4.4	1.7	3.6	1.4	3.0	1.1	2.5	0.95	2.0	0.26	0.57
3.7	2.4	5.2	2.0	4.3	1.7	3.6	1.4	3.0	1.1	2.5	0.94	2.0	0.26	0.56
3.8	2.4	5.2	2.0	4.3	1.7	3.6	1.4	3.0	1.1	2.4	0.94	2.0	0.26	0.56
3.9	2.4	5.2	2.0	4.3	1.7	3.6	1.4	2.9	1.1	2.4	0.94	2.0	0.26	0.56
4.0	2.4	5.1	2.0	4.3	1.7	3.6	1.4	2.9	1.1	2.4	0.93	2.0	0.26	0.56

Table 16C. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CMC (Salmonids Absent)

CMC (mg/L)	12		10		8.41		6.95		5.73		4.71	
	AMEL	AWEL										
0.1	10	12	8.6	9.7	7.3	8.2	6.0	6.8	5.0	5.6	4.1	4.6
0.2	9.1	11	7.5	9.5	6.3	8.0	5.2	6.6	4.3	5.4	3.6	4.5
0.3	8.0	11	6.7	9.2	5.6	7.8	4.6	6.4	3.8	5.3	3.1	4.3
0.4	7.2	11	6.0	9.0	5.0	7.6	4.1	6.3	3.4	5.2	2.8	4.2
0.5	6.5	11	5.4	8.8	4.6	7.4	3.8	6.1	3.1	5.0	2.6	4.1
0.6	6.0	10	5.0	8.6	4.2	7.2	3.5	6.0	2.9	4.9	2.3	4.1
0.7	5.6	10	4.6	8.4	3.9	7.1	3.2	5.9	2.7	4.8	2.2	4.0
0.8	5.2	9.9	4.4	8.3	3.7	6.9	3.0	5.7	2.5	4.7	2.1	3.9
0.9	5.0	9.7	4.1	8.1	3.5	6.8	2.9	5.6	2.4	4.6	2.0	3.8
1.0	4.8	9.6	4.0	8.0	3.3	6.7	2.8	5.5	2.3	4.6	1.9	3.8
1.1	4.6	9.4	3.8	7.8	3.2	6.6	2.7	5.5	2.2	4.5	1.8	3.7
1.2	4.4	9.3	3.7	7.7	3.1	6.5	2.6	5.4	2.1	4.4	1.7	3.6
1.3	4.3	9.2	3.6	7.6	3.0	6.4	2.5	5.3	2.1	4.4	1.7	3.6
1.4	4.2	9.0	3.5	7.5	3.0	6.3	2.5	5.2	2.0	4.3	1.7	3.5
1.5	4.2	8.9	3.5	7.4	2.9	6.3	2.4	5.2	2.0	4.3	1.6	3.5
1.6	4.1	8.8	3.4	7.4	2.9	6.2	2.4	5.1	2.0	4.2	1.6	3.5
1.7	4.0	8.7	3.4	7.3	2.8	6.1	2.3	5.1	1.9	4.2	1.6	3.4
1.8	4.0	8.7	3.3	7.2	2.8	6.1	2.3	5.0	1.9	4.1	1.6	3.4
1.9	3.9	8.6	3.3	7.1	2.8	6.0	2.3	5.0	1.9	4.1	1.5	3.4
2.0	3.9	8.5	3.3	7.1	2.7	6.0	2.3	4.9	1.9	4.1	1.5	3.3
2.1	3.9	8.4	3.2	7.0	2.7	5.9	2.2	4.9	1.8	4.0	1.5	3.3
2.2	3.8	8.4	3.2	7.0	2.7	5.9	2.2	4.8	1.8	4.0	1.5	3.3
2.3	3.8	8.3	3.2	6.9	2.7	5.8	2.2	4.8	1.8	4.0	1.5	3.3
2.4	3.8	8.2	3.2	6.9	2.7	5.8	2.2	4.8	1.8	3.9	1.5	3.2
2.5	3.8	8.2	3.1	6.8	2.6	5.7	2.2	4.7	1.8	3.9	1.5	3.2
2.6	3.7	8.1	3.1	6.8	2.6	5.7	2.2	4.7	1.8	3.9	1.5	3.2
2.7	3.7	8.1	3.1	6.7	2.6	5.7	2.2	4.7	1.8	3.9	1.5	3.2
2.8	3.7	8.0	3.1	6.7	2.6	5.6	2.2	4.7	1.8	3.8	1.5	3.2
2.9	3.7	8.0	3.1	6.7	2.6	5.6	2.1	4.6	1.8	3.8	1.5	3.1
3.0	3.7	7.9	3.1	6.6	2.6	5.6	2.1	4.6	1.8	3.8	1.4	3.1
3.1	3.7	7.9	3.1	6.6	2.6	5.5	2.1	4.6	1.8	3.8	1.4	3.1
3.2	3.7	7.9	3.0	6.6	2.6	5.5	2.1	4.6	1.7	3.8	1.4	3.1
3.3	3.6	7.8	3.0	6.5	2.6	5.5	2.1	4.5	1.7	3.7	1.4	3.1
3.4	3.6	7.8	3.0	6.5	2.5	5.5	2.1	4.5	1.7	3.7	1.4	3.1
3.5	3.6	7.7	3.0	6.5	2.5	5.4	2.1	4.5	1.7	3.7	1.4	3.0
3.6	3.6	7.7	3.0	6.4	2.5	5.4	2.1	4.5	1.7	3.7	1.4	3.0
3.7	3.6	7.7	3.0	6.4	2.5	5.4	2.1	4.4	1.7	3.7	1.4	3.0
3.8	3.6	7.7	3.0	6.4	2.5	5.4	2.1	4.4	1.7	3.7	1.4	3.0
3.9	3.6	7.6	3.0	6.4	2.5	5.3	2.1	4.4	1.7	3.6	1.4	3.0
4.0	3.6	7.6	3.0	6.3	2.5	5.3	2.1	4.4	1.7	3.6	1.4	3.0

Table 16D. Effluent Limitations – Ammonia Nitrogen, Total (as N) Based on CMC (Salmonids Absent)

CMC (mg/L)	3.88		3.2		2.65		2.2		1.84		1.56		1.32	
	AMEL	AWEL												
0.1	3.4	3.8	2.8	3.1	2.3	2.6	1.9	2.1	1.6	1.8	1.3	1.5	1.1	1.3
0.2	2.9	3.7	2.4	3.0	2.0	2.5	1.7	2.1	1.4	1.7	1.2	1.5	1.0	1.3
0.3	2.6	3.6	2.1	3.0	1.8	2.4	1.5	2.0	1.2	1.7	1.0	1.4	0.88	1.2
0.4	2.3	3.5	1.9	2.9	1.6	2.4	1.3	2.0	1.1	1.7	0.93	1.4	0.79	1.2
0.5	2.1	3.4	1.7	2.8	1.4	2.3	1.2	1.9	1.0	1.6	0.85	1.4	0.72	1.2
0.6	1.9	3.3	1.6	2.8	1.3	2.3	1.1	1.9	0.92	1.6	0.78	1.3	0.66	1.1
0.7	1.8	3.3	1.5	2.7	1.2	2.2	1.0	1.9	0.85	1.5	0.72	1.3	0.61	1.1
0.8	1.7	3.2	1.4	2.6	1.2	2.2	0.96	1.8	0.80	1.5	0.68	1.3	0.58	1.1
0.9	1.6	3.1	1.3	2.6	1.1	2.1	0.91	1.8	0.76	1.5	0.65	1.3	0.55	1.1
1.0	1.5	3.1	1.3	2.6	1.1	2.1	0.87	1.8	0.73	1.5	0.62	1.2	0.52	1.1
1.1	1.5	3.0	1.2	2.5	1.0	2.1	0.84	1.7	0.70	1.4	0.60	1.2	0.50	1.0
1.2	1.4	3.0	1.2	2.5	0.98	2.0	0.82	1.7	0.68	1.4	0.58	1.2	0.49	1.0
1.3	1.4	3.0	1.2	2.4	0.96	2.0	0.79	1.7	0.66	1.4	0.56	1.2	0.48	1.0
1.4	1.4	2.9	1.1	2.4	0.94	2.0	0.78	1.7	0.65	1.4	0.55	1.2	0.47	0.99
1.5	1.3	2.9	1.1	2.4	0.92	2.0	0.76	1.6	0.64	1.4	0.54	1.2	0.46	0.98
1.6	1.3	2.9	1.1	2.4	0.90	2.0	0.75	1.6	0.63	1.4	0.53	1.1	0.45	0.97
1.7	1.3	2.8	1.1	2.3	0.89	1.9	0.74	1.6	0.62	1.3	0.52	1.1	0.44	0.96
1.8	1.3	2.8	1.1	2.3	0.88	1.9	0.73	1.6	0.61	1.3	0.52	1.1	0.44	0.95
1.9	1.3	2.8	1.1	2.3	0.87	1.9	0.72	1.6	0.60	1.3	0.51	1.1	0.43	0.94
2.0	1.3	2.7	1.0	2.3	0.86	1.9	0.72	1.6	0.60	1.3	0.51	1.1	0.43	0.93
2.1	1.3	2.7	1.0	2.2	0.85	1.9	0.71	1.5	0.59	1.3	0.50	1.1	0.43	0.93
2.2	1.2	2.7	1.0	2.2	0.85	1.8	0.70	1.5	0.59	1.3	0.50	1.1	0.42	0.92
2.3	1.2	2.7	1.0	2.2	0.84	1.8	0.70	1.5	0.58	1.3	0.50	1.1	0.42	0.91
2.4	1.2	2.7	1.0	2.2	0.84	1.8	0.69	1.5	0.58	1.3	0.49	1.1	0.42	0.91
2.5	1.2	2.6	1.0	2.2	0.83	1.8	0.69	1.5	0.58	1.3	0.49	1.1	0.41	0.90
2.6	1.2	2.6	1.0	2.2	0.83	1.8	0.69	1.5	0.57	1.2	0.49	1.1	0.41	0.89
2.7	1.2	2.6	0.99	2.2	0.82	1.8	0.68	1.5	0.57	1.2	0.48	1.1	0.41	0.89
2.8	1.2	2.6	0.99	2.1	0.82	1.8	0.68	1.5	0.57	1.2	0.48	1.0	0.41	0.88
2.9	1.2	2.6	0.99	2.1	0.82	1.8	0.68	1.5	0.57	1.2	0.48	1.0	0.41	0.88
3.0	1.2	2.6	0.98	2.1	0.81	1.8	0.67	1.5	0.56	1.2	0.48	1.0	0.40	0.87
3.1	1.2	2.6	0.98	2.1	0.81	1.7	0.67	1.4	0.56	1.2	0.48	1.0	0.40	0.87
3.2	1.2	2.5	0.97	2.1	0.81	1.7	0.67	1.4	0.56	1.2	0.47	1.0	0.40	0.86
3.3	1.2	2.5	0.97	2.1	0.80	1.7	0.67	1.4	0.56	1.2	0.47	1.0	0.40	0.86
3.4	1.2	2.5	0.97	2.1	0.80	1.7	0.66	1.4	0.56	1.2	0.47	1.0	0.40	0.86
3.5	1.2	2.5	0.96	2.1	0.80	1.7	0.66	1.4	0.55	1.2	0.47	1.0	0.40	0.85
3.6	1.2	2.5	0.96	2.1	0.80	1.7	0.66	1.4	0.55	1.2	0.47	1.0	0.40	0.85
3.7	1.2	2.5	0.96	2.0	0.79	1.7	0.66	1.4	0.55	1.2	0.47	1.0	0.39	0.85
3.8	1.2	2.5	0.95	2.0	0.79	1.7	0.66	1.4	0.55	1.2	0.47	0.99	0.39	0.84
3.9	1.2	2.5	0.95	2.0	0.79	1.7	0.65	1.4	0.55	1.2	0.46	0.99	0.39	0.84
4.0	1.1	2.5	0.95	2.0	0.79	1.7	0.65	1.4	0.55	1.2	0.46	0.99	0.39	0.84

vi. **Applicable to Discharges to Receiving Waters with the MUN Use.** For discharges to receiving waters with the MUN use, the constituents subject to effluent limitations, as identified in the Notice of Applicability from the Executive Officer, shall not exceed the effluent limitations in Tables 17A and 17B below:

Table 17A. Effluent Limitations – Constituents of Concern (Receiving Waters with MUN Use)

CV	Aluminum, Total Recoverable (µg/L) ¹				Fluoride (mg/L)	
	With NAWQC Chronic Criterion		Without NAWQC Chronic Criterion			
	AMEL	AWEL	AMEL	AWEL	AMEL	AWEL
0.1	84	95	220	250	2.2	2.5
0.2	81	100	230	310	2.3	3.1
0.3	79	110	250	380	2.5	3.8
0.4	76	120	270	460	2.7	4.5
0.5	74	120	290	540	2.9	5.4
0.6	71	120	310	620	3.1	6.2
0.7	69	130	330	630	3.3	7.1
0.8	67	130	330	620	3.5	8.0
0.9	65	130	310	610	3.7	8.9
1.0	63	130	300	600	3.9	9.8
1.1	61	130	290	590	4.1	11
1.2	60	120	280	580	4.3	12
1.3	58	120	270	570	4.5	12
1.4	57	120	270	570	4.6	13
1.5	55	120	260	560	4.8	14
1.6	54	120	260	550	5.0	15
1.7	53	110	250	550	5.1	15
1.8	51	110	250	540	5.3	16
1.9	50	110	250	540	5.4	17
2.0	49	110	240	530	5.6	17
2.1	48	110	240	530	5.7	18
2.2	47	100	240	520	5.8	18
2.3	47	100	240	520	5.9	19
2.4	46	99	240	520	6.1	19
2.5	45	98	240	510	6.2	20
2.6	44	96	230	510	6.3	20
2.7	43	94	230	510	6.4	20
2.8	43	93	230	500	6.5	21
2.9	42	91	230	500	6.5	21
3.0	42	90	230	500	6.6	22
3.1	41	88	230	490	6.7	22
3.2	40	87	230	490	6.8	22
3.3	40	86	230	490	6.8	23
3.4	39	84	230	490	6.9	23
3.5	39	83	230	480	7.0	23
3.6	38	82	230	480	7.0	23
3.7	38	81	220	480	7.1	24
3.8	37	80	220	480	7.1	24
3.9	37	79	220	480	7.2	24
4.0	37	78	220	470	7.2	24

¹ The Central Valley Water Board will evaluate site-specific information to determine the applicability of the U.S. EPA National Ambient Water Quality Criteria (NAWQC) chronic aquatic life criterion of 87 µg/L to a receiving water, including effluent and receiving water pH and hardness data and site-specific study information. If the Central Valley Water Board determines that the NAWQC chronic criterion is applicable, the effluent limitations shall be selected from the “With NAWQC Chronic Criterion” columns. If the Central Valley Water Board determines that the NAWQC chronic criterion is not applicable, the effluent limitations shall be selected from the “Without NAWQC Chronic Criterion” columns. See section V.C.3.b.i of the Fact Sheet (Attachment F) for a discussion of the applicability of the NAWQC chronic criterion.

Table 17B. Effluent Limitations – Constituents of Concern (Receiving Waters with MUN Use)

CV	Manganese, Total Recoverable (µg/L)		Foaming Agents (MBAS) ¹ (mg/L)		Nitrate Plus Nitrite (as N, mg/L)		Nitrite Nitrogen, Total (as N, mg/L)	
	AMEL	AWEL	AMEL	AWEL	AMEL	AWEL	AMEL	AWEL
0.1	54	63	0.54	0.63	10	11	1.0	1.1
0.2	59	78	0.59	0.78	10	13	1.0	1.3
0.3	63	95	0.63	0.95	10	14	1.0	1.4
0.4	68	110	0.68	1.1	10	15	1.0	1.5
0.5	73	130	0.73	1.3	10	16	1.0	1.6
0.6	78	160	0.78	1.6	10	17	1.0	1.7
0.7	83	180	0.83	1.8	10	18	1.0	1.8
0.8	87	200	0.87	2.0	10	19	1.0	1.9
0.9	92	220	0.92	2.2	10	20	1.0	2.0
1.0	97	250	0.97	2.5	10	20	1.0	2.0
1.1	100	270	1.0	2.7	10	21	1.0	2.1
1.2	110	290	1.1	2.9	10	21	1.0	2.1
1.3	110	310	1.1	3.1	10	21	1.0	2.1
1.4	120	330	1.2	3.3	10	21	1.0	2.1
1.5	120	350	1.2	3.5	10	21	1.0	2.1
1.6	120	360	1.2	3.6	10	22	1.0	2.2
1.7	130	380	1.3	3.8	10	22	1.0	2.2
1.8	130	400	1.3	4.0	10	22	1.0	2.2
1.9	140	410	1.4	4.1	10	22	1.0	2.2
2.0	140	430	1.4	4.3	10	22	1.0	2.2
2.1	140	440	1.4	4.4	10	22	1.0	2.2
2.2	150	460	1.5	4.5	10	22	1.0	2.2
2.3	150	470	1.5	4.7	10	22	1.0	2.2
2.4	150	480	1.5	4.8	10	22	1.0	2.2
2.5	150	490	1.5	4.9	10	22	1.0	2.2
2.6	160	500	1.6	5.0	10	22	1.0	2.2
2.7	160	510	1.6	5.1	10	22	1.0	2.2
2.8	160	520	1.6	5.2	10	22	1.0	2.2
2.9	160	530	1.6	5.3	10	22	1.0	2.2
3.0	170	540	1.7	5.4	10	22	1.0	2.2
3.1	170	550	1.7	5.5	10	22	1.0	2.2
3.2	170	560	1.7	5.6	10	22	1.0	2.2
3.3	170	560	1.7	5.6	10	21	1.0	2.1
3.4	170	570	1.7	5.7	10	21	1.0	2.1
3.5	170	580	1.7	5.8	10	21	1.0	2.1
3.6	180	580	1.8	5.8	10	21	1.0	2.1
3.7	180	590	1.8	5.9	10	21	1.0	2.1
3.8	180	600	1.8	6.0	10	21	1.0	2.1
3.9	180	600	1.8	6.0	10	21	1.0	2.1
4.0	180	610	1.8	6.1	10	21	1.0	2.1

¹ MBAS – Methylene blue active substances

vii. **Applicable to Discharges to Receiving Waters without the MUN Use.** For discharges to receiving waters without the MUN use, the constituents subject to effluent limitations, as identified in the Notice of Applicability from the Executive Officer, shall not exceed the effluent limitations in Table 18 below:

Table 18. Effluent Limitations – Constituents of Concern (Receiving Waters without MUN Use)

CV	Aluminum, Total Recoverable (µg/L) ¹			
	With NAWQC Chronic Criterion		Without NAWQC Chronic Criterion	
	AMEL	AWEL	AMEL	AWEL
0.1	84	95	650	730
0.2	81	100	570	710
0.3	79	110	500	690
0.4	76	120	450	680
0.5	74	120	410	660
0.6	71	120	370	650
0.7	69	130	350	630
0.8	67	130	330	620
0.9	65	130	310	610
1.0	63	130	300	600
1.1	61	130	290	590
1.2	60	120	280	580
1.3	58	120	270	570
1.4	57	120	270	570
1.5	55	120	260	560
1.6	54	120	260	550
1.7	53	110	250	550
1.8	51	110	250	540
1.9	50	110	250	540
2.0	49	110	240	530
2.1	48	110	240	530
2.2	47	100	240	520
2.3	47	100	240	520
2.4	46	99	240	520
2.5	45	98	240	510
2.6	44	96	230	510
2.7	43	94	230	510
2.8	43	93	230	500
2.9	42	91	230	500
3.0	42	90	230	500
3.1	41	88	230	490
3.2	40	87	230	490
3.3	40	86	230	490
3.4	39	84	230	490
3.5	39	83	230	480
3.6	38	82	230	480
3.7	38	81	220	480
3.8	37	80	220	480
3.9	37	79	220	480
4.0	37	78	220	470

¹ The Central Valley Water Board will evaluate site-specific information to determine the applicability of the NAWQC chronic aquatic life criterion of 87 µg/L to a receiving water, including effluent and receiving water pH and hardness data and site-specific study information. If the Central Valley Water Board determines that the NAWQC chronic criterion is applicable, the effluent limitations shall be selected from the “With NAWQC Chronic Criterion” columns. If the Central Valley Water Board determines that the NAWQC chronic criterion is not applicable, the effluent limitations shall be selected from the “Without NAWQC Chronic Criterion” columns. See section V.C.3.b.i of the Fact Sheet (Attachment F) for a discussion of the applicability of the NAWQC chronic criterion.

viii. **Salinity**

- (a) **Applicable to Discharges to Receiving Waters in the Sacramento and San Joaquin River Basins with the MUN Use.** For discharges to receiving waters in the Sacramento and San Joaquin River Basins with the MUN use and with a calendar year annual average effluent electrical conductivity concentration that exceeds 900 µmhos/cm, the effluent electrical conductivity concentration shall not exceed the annual average effluent limitation specified in Table 19 below and in the Notice of Applicability from the Executive Officer. The effluent limitation for electrical conductivity serves as a cap to ensure that electrical conductivity concentrations do not increase and shall be based on Facility performance (i.e., the maximum observed calendar year annual average electrical conductivity of the effluent) and shall be specified in the Notice of Applicability as follows:

Table 19. Effluent Limitations – Electrical Conductivity for Discharges to Receiving Waters in the Sacramento and San Joaquin River Basins with the MUN Use

Maximum Annual Average Facility Performance (µmhos/cm)	Annual Average Effluent Limitation (µmhos/cm)
900 < EC ¹ ≤ 1,000	1,400
1,000 < EC ≤ 1,100	1,540
1,100 < EC ≤ 1,200	1,680
1,200 < EC ≤ 1,300	1,820
1,300 < EC ≤ 1,400	1,960
1,400 < EC ≤ 1,500	2,100
1,500 < EC ≤ 1,600	2,240
1,600 < EC ≤ 1,700	2,380
1,700 < EC ≤ 1,800	2,520
1,800 < EC	2,660

¹ EC – Electrical Conductivity @ 25°C

- (b) **Applicable to Discharges in the Tulare Lake Basin.** As specified in the Notice of Applicability, Dischargers within the Tulare Lake Basin shall not exceed the effluent limitations in (1) and (2) below:
- (1) **Boron and Chloride.** The Discharger shall maintain compliance with the effluent limitations specified in Table 20:

Table 20. Effluent Limitations – Boron and Chloride in the Tulare Lake Basin

Parameter	Units	Average Monthly Effluent Limitation
Boron	mg/L	1.0
Chloride	mg/L	175

- (2) **Electrical Conductivity @ 25°C.** The 12-month rolling average effluent electrical conductivity shall not exceed 1,000 µmhos/cm or the 12-month rolling average electrical conductivity of the source water plus 500 µmhos/cm, whichever is more stringent. When source water is from more than one source, the electrical conductivity shall be a flow-weighted average of all sources.

- ix. **Diazinon and Chlorpyrifos.** For discharges to the Sacramento River, the Feather River, the San Joaquin River and its tributaries downstream of the major dams and reservoirs, and the Sacramento-San Joaquin Delta, effluent diazinon and chlorpyrifos concentrations shall not exceed the sum of one (1.0) as identified below and as specified in the Notice of Applicability:

(a) **Average Monthly Effluent Limitation**

$$S_{AMEL} = \frac{C_{DM-avg}}{0.079} + \frac{C_{CM-avg}}{0.012} \leq 1.0$$

C_{DM-avg} = average monthly diazinon effluent concentration in µg/L.

C_{CM-avg} = average monthly chlorpyrifos effluent concentration in µg/L.

(b) **Average Weekly Effluent Limitation**

$$S_{AWEL} = \frac{C_{DW-avg}}{0.14} + \frac{C_{CW-avg}}{0.021} \leq 1.0$$

C_{DW-avg} = average weekly diazinon effluent concentration in µg/L.

C_{CW-avg} = average weekly chlorpyrifos effluent concentration in µg/L.

- x. **Methylmercury**

- (a) **Applicable to the City of Lodi, White Slough Water Pollution Control Facility. Effective 31 December 2030,** the effluent calendar year annual methylmercury load shall not exceed 0.94 grams, in accordance with the Delta Mercury Control Program.

- (b) **Applicable to the City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility. Effective 31 December 2030,** the effluent calendar year annual methylmercury load shall not exceed 0.38 grams, in accordance with the Delta Mercury Control Program.

- xi. **Total Mercury**

- (a) **Applicable if Total Maximum Daily Load (TMDL) Planned After Year 2021.** If the Discharger discharges to a receiving water that is listed as impaired for mercury on the CWA 303(d) list of impaired water bodies and the Central Valley Water Board plans to adopt a TMDL after the year 2021, the total annual mass discharge of total mercury shall not exceed the effluent limitation specified in the Notice of Applicability from the Executive Officer. The performance-based effluent limitation for total mercury shall be determined using Table 21 or the final effluent limitation contained in the Discharger’s individual NPDES permit, whichever is more stringent.

Table 21. Effluent Limitations – Total Mercury (If TMDL Planned After Year 2021)

Conditions ¹		Annual Mass Loading Limitation (lbs/year)
Design ADWF	Mercury MEC (µg/L)	
ADWF < 1 MGD	0.01 < MEC ≤ 0.05	0.15
	0.001 < MEC ≤ 0.01	0.030
	MEC ≤ 0.001	0.0030
1 < ADWF < 5	0.01 < MEC ≤ 0.05	0.75
	0.001 < MEC ≤ 0.01	0.15
	MEC ≤ 0.001	0.015

Conditions ¹		Annual Mass
Design ADWF	Mercury MEC (µg/L)	Loading Limitation (lbs/year)
5 < ADWF < 10	0.01 < MEC ≤ 0.05	1.5
	0.001 < MEC ≤ 0.01	0.30
	MEC ≤ 0.001	0.030
10 < ADWF < 15	0.01 < MEC ≤ 0.05	2.3
	0.001 < MEC ≤ 0.01	0.46
	MEC ≤ 0.001	0.046
15 < ADWF < 20	0.01 < MEC ≤ 0.05	3.0
	0.001 < MEC ≤ 0.01	0.61
	MEC ≤ 0.001	0.061

¹ ADWF – Average dry weather flow
 MEC – Maximum effluent concentration

xii. **Temperature**

(a) **Applicable to Discharges in the Sacramento-San Joaquin Delta.** For discharges within the legal boundaries of the Sacramento-San Joaquin Delta, except the City of Lodi White Slough Water Pollution Control Facility, the maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F as specified in the Notice of Applicability.

2. Interim Effluent Limitations

a. **Total Mercury**

- i. **Applicable to the City of Lodi, White Slough Water Pollution Control Facility. Effective upon issuance of the Notice of Applicability and until 30 December 2030,** the effluent calendar year annual total mercury load shall not exceed 23 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (Section V.A.1.c.x(a)).
- ii. **Applicable to the City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility. Effective upon issuance of the Notice of Applicability and until 30 December 2030,** the effluent calendar year annual total mercury load shall not exceed 90 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (Section V.A.1.c.x(b)).
- iii. **Applicable if Total Maximum Daily Load (TMDL) Planned Before Year 2021.** If the Discharger discharges to a receiving water that is listed as impaired for mercury on the CWA 303(d) list of impaired water bodies and the Central Valley Water Board plans to adopt a TMDL before the year 2021, **effective upon issuance of the Notice of Applicability and until this General Order is amended to implement a wasteload allocation adopted as part of a TMDL for mercury,** the total annual mass discharge of total mercury shall not exceed the effluent limitation specified in the Notice of Applicability from the Executive Officer. The performance-based effluent limitation for total mercury shall be determined using Table 22 or the final effluent limitation contained in the Discharger’s individual NPDES permit, whichever is more stringent.

Table 22. Effluent Limitations – Total Mercury (If TMDL Planned Before Year 2021)

Conditions ¹		Annual Mass
Design ADWF	Mercury MEC (µg/L)	Loading Limitation (lbs/year)
ADWF < 1 MGD	0.01 < MEC ≤ 0.05	0.15
	0.001 < MEC < 0.01	0.030
	MEC < 0.001	0.0030
1 < ADWF < 5	0.01 < MEC ≤ 0.05	0.75
	0.001 < MEC < 0.01	0.15
	MEC < 0.001	0.015
5 < ADWF < 10	0.01 < MEC ≤ 0.05	1.5
	0.001 < MEC < 0.01	0.30
	MEC < 0.001	0.030
10 < ADWF < 15	0.01 < MEC ≤ 0.05	2.3
	0.001 < MEC < 0.01	0.46
	MEC < 0.001	0.046
15 < ADWF < 20	0.01 < MEC ≤ 0.05	3.0
	0.001 < MEC < 0.01	0.61
	MEC < 0.001	0.061

¹ ADWF – Average dry weather flow
 MEC – Maximum effluent concentration

B. Land Discharge Specifications

This General Order does not authorize site-specific discharges to land; however this General Order does authorize the use of unlined ponds (e.g., treatment ponds, emergency storage, equalization, polishing) as part of the treatment system for which the specifications are provided in section VII.C.4.c, Pond Operating Specifications, of this General Order. For Dischargers enrolled under this General Order that discharge to land by other means than lined or unlined ponds that are part of the treatment system, or to ponds that are part of the treatment system but are otherwise regulated under separate WDR’s, site-specific discharges to land will be regulated through separate WDR’s.

C. Recycling Specifications

This General Order does not authorize the production or use of recycled water. For Dischargers enrolled under this General Order that also produce and/or use recycled water, the production and/or use of recycled water will be regulated through separate WDR’s, the General Order for Water Recycling Requirements (WQ 2016-0068-DDW), or another applicable water recycling order.

VI. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plans for the Sacramento and San Joaquin River Basins and the Tulare Lake Basin and are a required part of this General Order. Compliance with any amendment or revision to the water quality objectives contained in the Basin Plans adopted by the Central Valley Water Board subsequent to adoption of this General Order is also required. Any discharge authorized for coverage under this General Order shall not cause the following in the receiving water:

1. **Un-ionized Ammonia.** Un-ionized ammonia to be present in amounts that adversely affect beneficial uses nor to be present in excess of 0.025 mg/L (as N) in water bodies in the Tulare Lake Basin.
2. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL in water bodies with the beneficial use of REC-1.
3. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
4. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
5. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
6. **Dissolved Oxygen:**
 - a. For water bodies outside the Sacramento-San Joaquin Delta and for water bodies in the Tulare Lake Basin:
 - i. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - ii. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; and
 - iii. The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time for water bodies designated as warm freshwater habitat (WARM); or
 - iv. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time for water bodies designated as cold freshwater habitat (COLD) and/or spawning, reproduction, and/or early development (SPWN).
 - b. Within the legal boundaries of the Sacramento-San Joaquin Delta, the dissolved oxygen concentrations shall not be reduced below:
 - i. 7.0 mg/L in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge;
 - ii. 6.0 mg/L in the San Joaquin River (between Turner Cut and Stockton, 1 September through 30 November); and
 - iii. 5.0 mg/L in all other Delta waters except those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use.
7. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
8. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
9. **pH:**
 - a. The pH to be depressed below 6.5 or raised above 8.5 for water bodies in the Sacramento and San Joaquin River Basins (except Goose Creek).
 - b. The pH to be depressed below 7.5 nor raised above 9.5 within Goose Creek.

- c. The pH to be depressed below 6.5, raised above 8.3, nor changed by more than 0.3 units for water bodies in the Tulare Lake Basin.

10. **Pesticides:**

- a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
- b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
- c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by U.S. EPA or the Executive Officer for water bodies in the Sacramento and San Joaquin River Basins or prescribed in Standard Methods for the Examination of Water and Wastewater, 18th Edition, or other equivalent methods approved by the Executive Officer for water bodies in the Tulare Lake Basin designated as COLD;
- d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 C.F.R. 131.12.) for water bodies in the Sacramento and San Joaquin River Basins;
- e. Pesticide concentrations to exceed the lowest levels technically and economically achievable for water bodies in the Sacramento and San Joaquin River Basins;
- f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15 for water bodies in the Sacramento and San Joaquin River Basins or specified in Table 64444-A (Organic Chemicals) of section 64444 of Title 22 of the CCR for water bodies in the Tulare Lake Basin designated as municipal and domestic supply (MUN); nor
- g. Thiobencarb to be present in excess of 1.0 µg/L for water bodies in the Sacramento and San Joaquin River Basins designated MUN.

11. **Radioactivity:**

- a. Radionuclides to be present in concentrations that are harmful or deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations for water bodies designated as MUN.

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

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

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

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

16. **Temperature.** Where receiving water temperature limitations apply, as specified in the Notice of Applicability:
- a. For water bodies outside the legal boundaries of the Sacramento-San Joaquin Delta, except as specified below, the natural temperature shall not be increased by more than 5°F.
 - b. For water bodies within the legal boundaries of the Sacramento-San Joaquin Delta, except as specified below, the discharge shall not cause the following in the water body:
 - i. The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point.
 - ii. A surface water temperature rise greater than 4°F above the natural temperature of the receiving water at any time or place.
 - c. For the City of Roseville, Pleasant Grove Wastewater Treatment Plant, the discharge shall not cause the temperature at Monitoring Location RSW-002 in Pleasant Grove Creek to exceed the following:

Table 23. Temperature Receiving Water Limitations for Pleasant Grove Creek

Period	Period Maximum (°F) ¹	Period Average (°F) ²
January and February	69	64
March	70	67
April	74	70
May	78	75
June	81	77
July - September	83	80
October	81	77
November	77	72
December	70	65

¹ Instantaneous maximum not to be exceeded in period.

² Arithmetic average of measurements not to be exceeded in period.

- d. For the City of Roseville, Dry Creek Wastewater Treatment Plant, the discharge shall not cause the following in Dry Creek:
 - i. The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
 - ii. The natural temperature at Monitoring Location RSW-002 to exceed a daily average temperature of 15.6°C (60°F) and a daily maximum temperature of 16.7°C (62°F) between 1 November through 31 March.
- e. For the El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant, the discharge due to controllable factors shall not cause the temperature at Monitoring Location RSW-002 in Deer Creek to exceed the objectives specified below:

Table 24. Temperature Receiving Water Limitations for Deer Creek

Period	Daily Maximum (°F) ¹	Monthly Average (°F) ²
January and February	63	58
March	65	60

Period	Daily Maximum (°F) ¹	Monthly Average (°F) ²
April	71	64
May	77	68
June	81	74
July through September	81	77
October	77	72
November	73	65
December	65	58

¹ Maximum not to be exceeded.

² Defined as a calendar month average.

- f. For the City of Placerville, Hangtown Creek Water Reclamation Facility, the annual average ambient temperature to be increased by more than 5°F and the discharge to cause exceedance of the limitations in Table 25 in Hangtown Creek at Monitoring Location RSW-002.

Table 25. Temperature Receiving Water Limitations for Hangtown Creek

Period	Instantaneous Maximum (°F)	Weekly Average (°F)
1 December through 30 April	--	58
1 May through 31 May	--	67
1 June through 15 October	77	72
16 October through 30 November	--	67

- g. For the City of Atwater, Regional Wastewater Treatment Facility, the discharge shall not cause the temperature, as measured at RSW-002 (location as specified in the Notice of Applicability), to be raised above the following in Peck/Atwater Drain:
 - i. Above 90°F for the months of June, July, August, and September.
 - ii. Above 85°F for the months of April, May, and October;
 - iii. Above 80°F for the month of November; nor
 - iv. Above 77°F for the months of December, January, February, and March.
- h. For the City of Merced, Wastewater Treatment Facility, the discharge shall not cause the following in Hartley Slough:
 - i. The temperature to be increased by more than 5°F on an average annual basis;
 - ii. The daily average temperature to exceed 89°F at any time: nor
 - iii. The average temperature to exceed the following:
 - (a) 77°F from 1 June through 15 June;
 - (b) 76°F from 16 May through 31 May;
 - (c) 75°F from 1 May through 15 May;
 - (d) 74°F from 16 April through 30 April; and
 - (e) 73°F from 1 April through 15 April.
- i. For the City of Lodi, White Slough Water Pollution Control Facility, the discharge shall not cause an instantaneous temperature measured at RSW-001 of:
 - i. 86°F for the period of May through October; or

- ii. 80°F for the month of April; or
 - iii. 75°F for the months of March and November; or
 - iv. 68°F for the period of December through February.
17. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
18. **Turbidity.** Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.
- a. For water bodies in the Sacramento and San Joaquin River Basins, except Deer Creek (source to Cosumnes River), turbidity:
 - i. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
 - ii. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
 - iii. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
 - iv. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
 - v. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.
 - b. For Deer Creek (source to Cosumnes River), turbidity:
 - i. When the dilution ratio for discharges is less than 20:1:
 - (a) Where natural turbidity is less than 1 NTU, discharges shall not cause the receiving water daily average turbidity to exceed 2 NTUs or daily maximum turbidity to exceed 5 NTUs; and
 - (b) Where natural turbidity is between 1 and 5 NTUs, discharges shall not cause receiving water daily average turbidity to increase more than 1 NTU or daily maximum turbidity to exceed 5 NTUs.
 - (c) Where natural turbidity is between 5 and 50 NTUs, receiving water increases due to the discharge shall not exceed 20 percent;
 - (d) Where natural turbidity is between 50 and 100 NTUs, receiving water increases due to the discharge shall not exceed 10 NTUs; and
 - (e) Where natural turbidity is greater than 100 NTUs, receiving water increases due to the discharge shall not exceed 10 percent.
 - ii. Where the dilution ratio for discharges is 20:1 or greater:
 - (a) Where natural turbidity is between 0 and 5 NTUs, increases shall not exceed 1 NTU;
 - (b) Where natural turbidity is between 5 and 50 NTUs, receiving water increases due to the discharge shall not exceed 20 percent;
 - (c) Where natural turbidity is between 50 and 100 NTUs, receiving water increases due to the discharge shall not exceed 10 NTUs; and

- (d) Where natural turbidity is greater than 100 NTUs, receiving water increases due to the discharge shall not exceed 10 percent.
- c. For water bodies in the Tulare Lake Basin, turbidity shall not increase:
 - i. More than 1 NTU where natural turbidity is between 0 and 5 NTUs.
 - ii. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - iii. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
 - iv. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality or water quality objectives, whichever is greater.

VII. PROVISIONS

A. Standard Provisions

1. All Dischargers authorized to discharge under this General Order shall comply with all Standard Provisions (federal NPDES standard conditions from 40 C.F.R. part 122) included in Attachment D of this General Order.
2. All Dischargers authorized to discharge under this General Order shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this General Order, the more stringent provision shall apply:
 - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.
 - b. After notice and opportunity for a hearing, this General Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this General Order;
 - ii. obtaining this General Order by misrepresentation or by failing to disclose fully all relevant facts;
 - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 - iv. a material change in the character, location, or volume of discharge.The causes for modification include:
 - i. *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
 - ii. *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
 - iii. *Change in sludge use or disposal practice.* Under 40 C.F.R. section 122.62(a)(1), a change in the Discharger's sludge use or disposal

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

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

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

All Dischargers authorized to discharge under this General Order shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this General Order has not yet been modified.

- d. This General Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - i. Contains different conditions or is otherwise more stringent than any effluent limitation in this General Order; or
 - ii. Controls any pollutant limited in this General Order.

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

- e. The provisions of this General Order are severable. If any provision of this General Order is found invalid, the remainder of this General Order shall not be affected.
- f. All Dischargers authorized to discharge under this General Order shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this General Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. All Dischargers authorized to discharge under this General Order shall ensure compliance with any applicable existing or future pretreatment standard promulgated by U.S. EPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. A copy of this General Order and the Notice of Applicability shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- i. Safeguard to electric power failure:
 - i. All Dischargers authorized to discharge under this General Order shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this General Order.

- ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.
 - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this General Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this General Order.
- j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VII.A.2.i of this General Order.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

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

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

larger flows. The Central Valley Water Board may extend the time for submitting the report.

- I. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- n. Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).
- o. 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 General Order and the applicable Notice of Applicability by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

To assume operation under this General Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Notice of Applicability. The transfer request shall be made 30 days prior to the effective date of the new ownership or operator. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, and the name, address and telephone number of the persons responsible for contact with the Central Valley Water Board. The request must also include a statement that the new owner or operator assumes full responsibility for compliance with this General Order and shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B). Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

- p. Failure to comply with provisions or requirements of this General Order, or violation of other applicable laws or regulations governing discharges from the facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- q. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this General Order, the Discharger shall notify the Central Valley Water Board by telephone at (916) 464-3291 (Sacramento office), at (530) 224-4845 (Redding

office), or at (559) 445-5116 (Fresno office), **within 24 hours** of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

All Dischargers authorized to discharge under this General Order shall comply with the MRP, and future revisions thereto, in Attachment E of this Order, and as specified in each Discharger's Notice of Applicability from the Executive Officer.

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. **Mercury.** The Basin Plans' Delta Mercury Control Program was designed to proceed in two phases. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. This General Order may be reopened to address changes to the Delta Mercury Control Program.
- c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE) or Toxicity Evaluation Study (TES), this Order may be reopened to include a revised chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions, this Order may be reopened to implement the new provisions.
- d. **Water Effect Ratios (WERs) and Metal Translators.** A default WER of 1.0 has been used in this General Order for calculating criteria for applicable inorganic constituents, except for copper (United States Department of the Interior, National Park Service, Yosemite National Park, El Portal Wastewater Treatment Facility; United Auburn Indian Community, Thunder Valley Casino Wastewater Treatment Plant; City of Grass Valley, Wastewater Treatment Plant; City of Auburn, Wastewater Treatment Plant; City of Galt, Wastewater Treatment Plant and Reclamation Facility; Cutler-Orosi Joint Powers Wastewater Authority, Wastewater Treatment Facility; El Dorado Irrigation District, El Dorado Hills Wastewater Treatment Plant; El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant; and Donner Summit Public Utility District, Wastewater Treatment Plant) and zinc (City of Grass Valley, Wastewater Treatment Plant; and El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant). 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, except for copper and zinc (City of Grass Valley, Wastewater Treatment Plant).

If a Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this General Order may be reopened to allow effluent limitations to be modified using a site-specific WER or translator for a particular Discharger.

- e. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This General Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- f. **Diazinon and Chlorpyrifos Basin Plan Amendment.** Diazinon is a pesticide that has been banned for residential use; however, it sometimes is still detected in surface waters. There are existing water quality objectives in the Basin Plan for diazinon in the Feather River, Sacramento River, San Joaquin River, and Sacramento-San Joaquin Delta. In addition, the Central Valley Water Board has adopted a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. The Basin Plan Amendment also will apply the diazinon water quality objectives to additional surface waterbodies. The State Water Board and the Office of Administrative Law have both approved the Basin Plan Amendment. U.S. EPA action on the Basin Plan Amendment is pending. This Order will be reopened to modify diazinon effluent limitations, as appropriate, in accordance with amendments to the Basin Plan.
- g. **Sacramento and San Joaquin River, and Tulare Lake Basin Variances for Salinity.** On 6 June 2014, the Central Valley Water Board adopted Resolution No. R5-2014-0074, *Amendments to the Water Quality Control Plan for the Sacramento and San Joaquin River Basins and the Water Quality Control Plan for the Tulare Lake Basin to Add Policies for Variances from Surface Water Quality Standards for Point Source Dischargers, Variance Program for Salinity, and Exception from Implementation of Water Quality Objectives for Salinity*, which became effective under the Clean Water Act on 8 July 2016 upon approval by U.S. EPA.
- h. **Basin Plan Amendment – Salinity Objectives for the Lower San Joaquin River.** The Central Valley Water Board adopted a Basin Plan Amendment on 9 June 2017, which establishes salinity water quality objectives in the Lower San Joaquin River from Merced River to Vernalis. Furthermore, the Basin Plan Amendment modified the Salt and Boron TMDL to clarify that NPDES point source dischargers could participate in the real-time salinity management program in lieu of complying with the wasteload allocations. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with the Basin Plan Amendment upon approval by the State Water Board, Office of Administrative Law, and U.S. EPA.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Toxicity Reduction Evaluation Requirements.** For compliance with the Basin Plans' narrative toxicity objective, this General Order requires Dischargers to conduct chronic whole effluent toxicity (WET) testing, as specified in the MRP (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in

accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.

This Provision includes requirements for the development and submittal of a TRE Workplan or TRE Investigative Workplan, and TRE initiation. A TRE Workplan is required (see i. below) if the chronic toxicity results submitted as part of the Notice of Intent contain results that are greater than 1.3 TUc and 25% effect. If all the chronic toxicity results submitted as part of the Notice of Intent are less than less than 1.3 TUc and 25% effect, then the Investigative TRE Workplan is required (see ii. below).

- i. **TRE Workplan.** If the Discharger has not previously submitted and received approval of a TRE Workplan, then **within 90 days** of the issuance of the Notice of Applicability, the Discharger shall submit to the Central Valley Water Board a TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with U.S. EPA guidance (see Attachment F, Fact Sheet section VII.B.2.a) and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.
- ii. **Investigative TRE Workplan.** If the Discharger has not previously submitted and received approval for an Investigative TRE Workplan, then **within 90 days** of the issuance of the Notice of Applicability, the Discharger shall submit to the Central Valley Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer. This should be a one to two page document including, at a minimum:
 - (a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;
 - (b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and
 - (c) A discussion of who will conduct the Toxicity Identification Evaluation, if necessary (e.g., an in-house expert or outside contractor).
- iii. **Numeric Toxicity Monitoring Trigger.** If the Facility does not require a chronic toxicity effluent limit, then the numeric toxicity monitoring trigger is **1 TUc** (where $TUc = 100/NOEC$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection iv, below.
- iv. **Chronic Toxicity Monitoring Trigger or Effluent Limitation Exceeded.** When a chronic whole effluent toxicity result during routine monitoring exceeds the chronic toxicity monitoring trigger or effluent limitation, the Discharger shall proceed as follows:

- (a) **Initial Toxicity Check.** If the result is less than or equal to 1.3 TUc (as 100/EC₂₅) AND the percent effect is less than 25 percent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring.¹ Otherwise, proceed to step (b).
- (b) **Evaluate 6-week Median.** The Discharger may take two additional samples, within 6 weeks of the initial sample collection date for the sample that exceeded the chronic toxicity monitoring trigger or effluent limitation, to evaluate compliance using a 6-week median. If the 6-week median is greater than 1.3 TUc (as 100/EC₂₅) and the percent effect is greater than 25 percent, proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring.
- (c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring. If the source of toxicity is not easily identified the Discharger shall conduct a site-specific TRE or participate in an approved TES as described in the following subsections.
- (d) **Toxicity Evaluation Study.** If the percent effect is \leq 50 percent at **100** percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6 week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
- (e) **Toxicity Reduction Evaluation.** If the percent effect is $>$ 50 percent at **100** percent effluent, as the median of three consecutive chronic toxicity tests within a 6 week period, the Discharger shall initiate a site-specific TRE as follows:
- (1) **Within thirty (30) days** of exceeding the chronic toxicity effluent limitation, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
- Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - A schedule for these actions.
- b. **Phase 1 Methylmercury Control Study.** In accordance with the Basin Plans' Delta Mercury Control Program and the compliance schedule included in this Order for methylmercury (Section VII.C.7.b), Dischargers within the Sacramento-San Joaquin Delta shall participate in the Central Valley Clean Water Association (CVCWA)

¹ The Discharger may participate in an approved TES if the chronic toxicity monitoring trigger or effluent limitation is exceeded twice or more in the past 12 month period and the cause is not identified and/or addressed.

Coordinated Methylmercury Control Study (Study) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury waste load allocation. A workplan was submitted by CVCWA on 20 April 2013.

The Study shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve the methylmercury allocation. The Study also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure. The Study may evaluate the effectiveness of using inorganic (total) mercury controls to control methylmercury discharges.

The Study shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness, costs, potential environmental effects, and overall feasibility of the control actions. The Study shall also include proposed implementation plans and schedules to comply with methylmercury allocations as soon as possible. The Study shall be submitted to the Central Valley Water Board by **20 October 2018**.

The Executive Officer may, after public notice, extend the due date up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing, and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.

3. Best Management Practices and Pollution Prevention

- a. **Pollution Prevention Plan (PPP) for Mercury.** Dischargers within the Sacramento-San Joaquin Delta shall implement a PPP for mercury in accordance with Water Code section 13263.3(d)(3), per the compliance schedule in this Order for methylmercury (section VII.C.7.b). If a PPP for mercury has not been previously submitted, the Discharger shall submit a PPP within 3 months of issuance of the Notice of Applicability for Executive Officer approval. If a PPP for mercury has already been submitted, the Discharger is not required to re-submit the PPP but shall continue to implement the PPP. Progress reports shall be submitted annually in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1.). The progress reports shall discuss the effectiveness of the PPP in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the PPP.
- b. **Mercury Exposure Reduction Program.** Dischargers within the Sacramento-San Joaquin Delta shall participate in a Mercury Exposure Reduction Program (MERP) in accordance with the Basin Plans' Delta Mercury Control Program. An exposure reduction workplan for Executive Officer approval was submitted by Delta dischargers on 20 October 2013. The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The workplan shall address the MERP objective, elements, and the Discharger's coordination with other stakeholders. The minimum requirements for the exposure reduction workplan are outlined in the Fact Sheet (Attachment F, section VI.B.3.b). The Discharger shall integrate or, at minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities. The Discharger shall continue to participate in the group effort to implement the workplan.

- c. **Salinity Evaluation and Minimization Plan.** Dischargers shall implement a Salinity Evaluation and Minimization Plan to identify and address sources of salinity discharged from the Facility. If a Salinity Evaluation and Minimization Plan has not been previously submitted and the maximum observed calendar year annual average electrical conductivity of the effluent exceeds 900 µmhos/cm, the Discharger shall submit a Salinity Evaluation and Minimization Plan **within 9 months** of issuance of the Notice of Applicability. If a Salinity Evaluation and Minimization Plan has already been submitted, the Discharger is not required to re-submit the plan (except as per the condition below), but shall continue to implement the Salinity Evaluation and Minimization Plan.

For discharges that have MUN as a beneficial use and are subject to effluent limitations in Table 19, the Notice of Applicability will require the Discharger to submit and implement an updated Salinity Evaluation and Minimization Plan if the calendar year annual average effluent electrical conductivity exceeds the performance-based triggers in Table 26 below in a given year. For discharges that have MUN as a beneficial use and are not subject to effluent limitations in Table 19, the Notice of Applicability will require the Discharger to submit and implement an updated Salinity Evaluation and Minimization Plan if the calendar year annual average effluent electrical conductivity exceeds a performance-based trigger of 900 µmhos/cm in a given year. The revised plan shall be submitted by 1 April of the year following the exceedance.

Table 26. Triggers for Updating Salinity Evaluation and Minimization Plan

Maximum Annual Average Facility Performance (µmhos/cm)	Performance-Based Trigger (µmhos/cm)
900 < EC ¹ ≤ 1,000	1,200
1,000 < EC ≤ 1,100	1,320
1,100 < EC ≤ 1,200	1,440
1,200 < EC ≤ 1,300	1,560
1,300 < EC ≤ 1,400	1,680
1,400 < EC ≤ 1,500	1,800
1,500 < EC ≤ 1,600	1,920
1,600 < EC ≤ 1,700	2,040
1,700 < EC ≤ 1,800	2,160
1,800 < EC	2,280

¹ EC – Electrical Conductivity @ 25°C

For discharges that do not have MUN as a beneficial use, the Discharger shall be required to monitor for electrical conductivity.

4. Construction, Operation and Maintenance Specifications

- a. **Filtration System Operating Specifications.** The Notice of Applicability shall specify filtration system operating specifications for Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 to ensure the filtration system is operating properly to provide adequate disinfection of the wastewater. As specified in the Notice of Applicability, the turbidity of the filter effluent measured at Monitoring Location FIL-002 shall not exceed the applicable measurements in i and ii below. The City of Atwater and the City of Merced periodically do not use coagulation. When coagulation is not used, these dischargers shall ensure that the

turbidity of the filter influent and effluent measured at Monitoring Locations FIL-001 and FIL-002, respectively, complies with the applicable measurements in iii below.

- i. **Applicable to Granular Media Filtration Systems or Equivalent**
 - (a) 2 NTU as a daily average;
 - (b) 5 NTU more than 5 percent of the time within a 24-hour period; and
 - (c) 10 NTU at any time.
 - ii. **Applicable to Membrane Filtration Systems or Equivalent**
 - (a) 0.2 NTU more than 5 percent of the time within a 24-hour period; and
 - (b) 0.5 NTU at any time.
 - iii. **Applicable to Granular Media Filtration Systems or Equivalent for the City of Atwater and the City of Merced (when coagulation is not used)**
 - (a) The turbidity of the influent to the filtration unit measured at FIL-001 shall not exceed 5 NTU for more than 15 minutes and never exceed 10 NTU; and
 - (b) The effluent turbidity measured at FIL-002 shall not exceed 2 NTU at any time.
- b. **UV Disinfection System Operating Specifications.** The Notice of Applicability shall specify UV disinfection system operating specifications for Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 that utilize UV disinfection. The UV disinfection system must be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water, as specified in the Notice of Applicability. If the Discharger's site-specific UV engineering study specifies dose and transmittance requirements that vary from those listed in VII.C.4.b.i and ii, below, the Discharger shall submit a copy of the UV engineering study with the Notice of Intent and the Notice of Applicability will include alternative dose and transmittance requirements based on the site-specific UV engineering study. The Notice of Applicability shall also include all applicable requirements received from DDW.
- i. **UV Dose**
 - (a) **Applicable to Granular Media Filtration Systems or Equivalent.** The minimum hourly average UV dose in the UV reactor shall be 100 millijoules per square centimeter (mJ/cm^2).
 - (b) **Applicable to Membrane Filtration Systems or Equivalent.** The minimum hourly average UV dose in the UV reactor shall be $80 \text{ mJ}/\text{cm}^2$.
 - ii. **UV Transmittance**
 - (a) **Applicable to Granular Media Filtration Systems or Equivalent.** The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at Monitoring Location UVS-001 shall not fall below 55 percent.
 - (b) **Applicable to Membrane Filtration Systems or Equivalent.** The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at Monitoring Location UVS-001 shall not fall below 65 percent.

- iii. The lamp sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.
 - iv. The lamp sleeves must be cleaned periodically as necessary to meet the UV dose requirements.
 - v. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.
 - vi. The Facility must be operated in accordance with an approved operations and maintenance program that assures adequate disinfection.
- c. **Pond Operating Specifications.** The Notice of Applicability shall specify the following pond operating specifications for treatment facilities that include ponds that are used as part of a treatment process and that are not regulated under a separate WDR's, whether lined or unlined (e.g., treatment ponds, emergency storage, equalization, polishing):
- i. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency, except as noted below:
 - (a) For the City of Atwater;
 - (1) Any municipal wastewater directed to the Emergency Storage Basin shall be returned to the Facility for treatment as soon as possible, and
 - (2) If there is potential for flooding in Bear Creek, wastewater must be removed from the Emergency Storage Basin prior to the onset of significant precipitation, and no wastewater may be directed to the Emergency Storage Basin for at least 24 hours after cessation of significant precipitation. Significant precipitation is defined as 0.25 inches during a 24-hour period.
 - ii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
 - iii. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically,
 - (a) For earthen facilities, an erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - (b) Weeds shall be minimized through the control of water depth, harvesting, or herbicides.
 - (c) Dead algae, vegetation, and debris shall not accumulate on the water surface.
 - (d) The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
 - iv. The discharge of waste classified as "hazardous" as defined in the California Code of Regulations (CCR), title 22, section 66261.1 et seq., is prohibited.

- v. Objectionable odors originating at this Facility shall not be perceivable beyond the limits of the Facility property at an intensity that creates or threatens to create nuisance conditions.
- vi. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow of the pond levee). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.
- vii. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with sections i and vi above.
- viii. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.
- ix. The Discharger shall monitor sludge accumulation in wastewater treatment or storage ponds at least every five years and shall periodically remove sludge as necessary to maintain adequate storage capacity.
- x. Wastewater contained in any unlined pond shall not have a pH less than 6.0 or greater than 9.0. Short term and temporary fluctuations in pond pH below 6.0 and above 9.0 lasting no more than one week at a time are permitted for operational purposes.

5. Special Provisions for Municipal Facilities (POTW's Only)

a. Pretreatment Requirements

As specified in the Notice of Applicability, Dischargers with a total design flow greater than 5 MGD and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards shall comply with the following pretreatment requirements. The Notice of Applicability may also require compliance with the following requirements for POTW's with a design flow of 5 MGD or less if the nature or volume of the industrial influent, treatment process upsets, violations of POTW effluent limitations, contamination of municipal sludge, or other circumstances warrant in order to prevent interference with the POTW or pass through.

- i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. part 403, including any subsequent regulatory revisions to 40 C.F.R. part 403. Where 40 C.F.R. part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 1 year from the issuance date of the Notice of Applicability or the effective date of the 40 C.F.R. part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by U.S. EPA or other appropriate parties, as provided in the CWA. U.S. EPA may initiate enforcement action against a nondomestic

user for noncompliance with applicable standards and requirements as provided in the CWA.

- ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.
 - iii. The Discharger shall perform the pretreatment functions as required in 40 C.F.R. part 403 including, but not limited to:
 - (a) Implement the necessary legal authorities as provided in 40 C.F.R. section 403.8(f)(1);
 - (b) Enforce the pretreatment requirements under 40 C.F.R. section 403.5 and 403.6;
 - (c) Implement the programmatic functions as provided in 40 C.F.R. section 403.8(f)(2); and
 - (d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 C.F.R. section 403.8(f)(3).
 - iv. **Pretreatment Reporting Requirements.** Pretreatment reporting requirements are included in the Monitoring and Reporting Program, section X.D.5 of Attachment E.
- b. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. part 503.

As specified in the Notice of Applicability from the Executive Officer, the Discharger shall comply with the following sludge/biosolids treatment or discharge specifications. Dischargers regulated under separate WDRs for Sludge/Biosolids Treatment or Discharge Specifications will not be subject to the sludge/biosolids treatment or discharge specifications in this Order.

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

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

- The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section VI.B of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section VI.B of this Order.
- ii. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 C.F.R. part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 C.F.R. part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 C.F.R. part 503 whether or not they have been incorporated into this Order.
 - iii. The Discharger shall comply with Section IX.A Biosolids of the Monitoring and Reporting Program, Attachment E.
 - iv. The onsite sludge/biosolids treatment, processing, and storage for the Facility is described in the Fact Sheet (Attachment F, Section II.A). Any proposed change in the onsite treatment, processing, or storage of sludge/biosolids shall be reported to the Executive Officer at least **90 days** in advance of the change, and shall not be implemented until written approval by the Executive Officer.
- c. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003-DWQ, Statewide General WDR's for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003-DWQ and any future revisions thereto. Order No. 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the general WDR's.
 - d. **Anaerobically Digestible Material.** If the Discharger proposes to receive hauled-in anaerobically digestible material for injection into an anaerobic digester for co-digestion, the Discharger shall notify the Central Valley Water Board and develop and implement standard operating procedures (SOP's) for this activity prior to initiation of the hauling. If the Discharger is currently accepting anaerobically digestible material for injection into an anaerobic digester for co-digestion, then within 180 days of issuance of the Notice of Applicability, the Discharger shall develop and implement SOP's for this activity. The SOP's shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the SOP's shall address avoidance of the introduction of materials that could cause interference, pass-through, or upset of the treatment processes; avoidance of prohibited material, vector control, odor control, operation and maintenance, and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall provide training to its staff on the SOP's and shall maintain records for a minimum of 3 years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of 3 years for the disposition, location, and quantity of accumulated pre-digestion-segregated solid waste hauled off-site.

6. Other Special Provisions

- a. **Title 22, or Equivalent, Disinfection Requirements.** For Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4, wastewater shall be oxidized, coagulated (as needed), filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

7. Compliance Schedules

- a. **Methylmercury for the City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility.** This Order requires compliance with the final effluent limitations for methylmercury for Dischargers in the Sacramento-San Joaquin Delta by 31 December 2030. Dischargers in the Sacramento-San Joaquin Delta shall comply with the following time schedule to ensure compliance with the final effluent limitations:

<u>Task</u>	<u>Date Due</u>
<u>Phase 1</u>	
i. Submit CVCWA Coordinated Methylmercury Control Study Workplan	Complete
ii. Prepare and Implement PPP ¹ for Mercury (per Section VII.C.3.a)	Within 3 months of issuance of the Notice of Applicability (if a PPP has not been previously submitted)
iii. Implement CVCWA Coordinated Methylmercury Control Study Workplan	Immediately following Executive Officer approval
iv. Annual Progress Reports ²	30 January, annually
v. Submit Final CVCWA Coordinated Methylmercury Control Study	20 October 2018³
<u>Phase 2</u>	
vi. Implement methylmercury control programs	TBD⁴
vii. Full Compliance	31 December 2030⁴

¹ The PPP for mercury shall be implemented in accordance with Section VI.C.3.a.
² Beginning **30 January 2018** and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including a summary of total mercury and methylmercury monitoring results.
³ The Executive Officer may, after public notice, extend the due date for the Final CVCWA Coordinated Methylmercury Control Study up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing, and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.
⁴ To be determined. Following Phase 1 the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations, final compliance date, etc. Consequently, the start of Phase 2 and the final compliance date is uncertain at the time this Order was adopted.

VIII. COMPLIANCE DETERMINATION

- A. **BOD₅ and TSS Effluent Limitations (Sections V.A.1.a.i and V.A.1.a.ii).** Compliance with the final effluent limitations for BOD₅ and TSS required in Limitations and Discharge Requirements sections V.A.1.a.i and V.A.1.a.ii shall be ascertained by 24-hour composite

samples. Compliance with effluent limitations required in Limitations and Discharge Requirements section V.A.1.a.i(b) and V.A.1.a.ii(b) for percent removal shall be calculated using the arithmetic mean of BOD₅ and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

- B. Aluminum Effluent Limitations (Sections V.A.1.c.vi and V.A.1.c.vii).** Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
- C. Total Mercury Mass Loading Effluent Limitations (Sections V.A.1.c.xi and V.A.2.b).** The procedures for calculating mass loadings are as follows:
1. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program, and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the mercury load for the individual calendar months. Calculation of the monthly mercury load shall be conducted as follows.
 - a. If mercury measurements are made at least monthly during a calendar year, the total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow.
 - b. If data is only collected for one month during a calendar quarter, the mass load for each individual calendar month within the calendar quarter shall be determined using the average of all concentration data collected for the one month and the total monthly flow for each individual calendar month. (e.g., the average mercury effluent concentration in December was 0.044 µg/L and the total monthly flow was 129 MG. Mercury monitoring data was not collected in October and November; the total monthly flows of the individual months were 60 MG and 84 MG, respectively. Therefore, the total pollutant mass load for the calendar quarter equates to 0.1 lbs/quarter (0.022 lbs/mo + 0.031 lbs/mo + 0.047 lbs/mo).
 - c. If data is only collected for two months during a calendar quarter, the mass load for each of those individual calendar months shall be determined using the corresponding average of all concentration data collected that month and the corresponding total monthly flow for that month. The total pollutant mass load for the remaining month within the calendar quarter shall be determined using the average of all concentration data collected that calendar quarter and the corresponding total monthly flow for that month. (e.g., the average monthly mercury concentrations in July and August were 0.0004 µg/L and 0.00034 µg/L and the total monthly flows were 35 MG and 31 MG, respectively. The average monthly mercury concentration for September was calculated to be 0.00037 µg/L and the total monthly flow was 30 MG. Therefore, the total pollutant mass load for the calendar quarter equates to 0.00022 lbs/quarter (0.00012 lbs/mo + 0.000088 lbs/mo + 0.000093 lbs/mo).
 - d. If data is only collected one month during a calendar year, the total mass load for each of the individual months of the calendar year shall be determined using the average concentration data for the one month and the total monthly flow for each individual calendar month.
 2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the

non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

- D. Average Dry Weather Flow Effluent Limitations (Section V.A.1.a.iii).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).
- E. Total Coliform Organisms Effluent Limitations (Sections V.A.1.a.i(c) and V.A.1.a.ii(c)).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds 23 MPN/100 mL (for Dischargers subject to V.A.1.a.i(c)(1)) or 2.2 MPN/100 mL (for Dischargers subject to V.A.1.a.ii(c)(1)), the Discharger will be considered out of compliance.
- F. Total Residual Chlorine Effluent Limitations (Section V.A.1.c.iii).** Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive. Records supporting validation of false positives shall be maintained in accordance with Section IV Standard Provisions (Attachment D).

- G. Mass Effluent Limitations.** The mass effluent limitations contained in the Final Effluent Limitations V.A.1.a.i(a) and V.A.1.a.ii(a) for BOD₅ and TSS and V.A.1.c.v(b) for ammonia are based on the permitted average dry weather flow and calculated as follows:

$$\text{Mass (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34 \text{ (conversion factor)}$$

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations V.A.1.a.i(a) and V.A.1.a.ii(a) for BOD₅ and TSS and V.A.1.c.v(b) for ammonia shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

- H. Priority Pollutant Effluent Limitations.** Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4.5 of the SIP, as follows:
1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
 - a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
 - b. A sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).
 3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
 4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall not be deemed out of compliance.
- I. Dissolved Oxygen Receiving Water Limitation (Section VI.A.6).** Receiving water monitoring is required in the Monitoring and Reporting Program (Attachment E) and is sufficient to evaluate the impacts of the discharge and compliance with this General Order. Receiving water monitoring data, measured at Monitoring Locations RSW-001 and RSW-002, will be used to determine compliance with sections VI.A.6.a.iii, VI.A.6.a.iv, VI.A.6.b.i, VI.A.6.b.ii, and VI.A.6.b.iii of the dissolved oxygen receiving water limitation to ensure the discharge does not cause the dissolved oxygen concentrations in the receiving water to be reduced below the specified receiving water limitation at any time. However, should more frequent dissolved oxygen and temperature receiving water monitoring be conducted, Central Valley Water Board staff may evaluate compliance with sections VI.A.6.a.i and VI.A.6.a.ii.
- J. Chronic Whole Effluent Toxicity Effluent Limitation (Section V.A.1.c.ii).** To evaluate compliance with the chronic whole effluent toxicity effluent limitation, the median chronic toxicity units (TUc) shall be the median of up to three consecutive chronic toxicity bioassays during a six week period. This includes a routine chronic toxicity monitoring event and two subsequent optional compliance monitoring events. Where the median chronic toxicity units exceed 1 TUc (as 100/NOEC), the Discharger will be deemed out of compliance with the chronic toxicity effluent limitation if the median chronic toxicity units for any endpoint also exceed a reporting level of 1.3 TUc (as 100/EC₂₅) AND the percent effect at 100% effluent exceeds 25 percent. The percent effect used to evaluate compliance with the chronic toxicity effluent limitation shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic

toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the chronic toxicity effluent limitation.

- K. Chlorpyrifos and Diazinon Effluent Limitations (Section V.A.1.c.ix).** Compliance shall be determined by calculating the sum (S), as provided in this Order, with analytical results that are reported as “non-detectable” concentrations to be considered to be zero.
- L. Temperature Effluent Limitation (Section V.A.1.c.xii).** Compliance with the final effluent limitations for temperature shall be ascertained using the average of effluent monitoring results measured at Monitoring Location EFF-001 during the 24-hour period starting at 12:00 a.m. measured on the same day of the receiving water monitoring results and the daily average temperature of the receiving water measured at Monitoring Location RSW-001.
- M. Use of Delta Regional Monitoring Program and Other Receiving Water Data to Determine Compliance with Receiving Water Limitations.** For Dischargers in the Sacramento-San Joaquin Delta, Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be conducted by the Discharger under this permit will not be used directly to determine that the discharge is in violation of this Order. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger that is not conducted by the Delta Regional Monitoring Program and submit that monitoring data. As described in section VIII of Attachment E, such data may be used, if scientifically defensible, in conjunction with other receiving water data, effluent data, receiving water flow data, and other pertinent information to determine whether or not a discharge is in compliance with this Order.
- N. Period Average, Calendar Month Average, and Annual Average (Section VI.A.16).** Period average shall be the arithmetic average of all measurements taken during the period indicated. Calendar month average shall be the arithmetic average of all measurements taken during the month(s) indicated. Annual average shall be the arithmetic average of all measurements taken during the calendar year.
- O. Turbidity Receiving Water Limitation (Section VI.A.18).** A 1-month averaging period may be used when determining compliance with the turbidity receiving water limitations.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

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

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

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

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

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Controllable Factors

Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Water Board or Regional Water Board, and that may be reasonably controlled.

Daily Discharge

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

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

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

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit

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

Effect Concentration (EC)

A point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC_{25} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms.

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

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

Endpoint

An effect that is measured in a toxicity study. Endpoints in toxicity tests may include, but are not limited to survival, reproduction, and growth.

Estimated Chemical Concentration

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

Estuaries

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

Inland Surface Waters

All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation

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

Instantaneous Minimum Effluent Limitation

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

Maximum Daily Effluent Limitation (MDEL)

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

Median

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

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

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

Mixing Zone

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

Monthly Median Effluent Limitation (MMEL)

The highest allowable median of daily discharges over a six-week period, calculated as the median value of all daily discharges measured during a six-week period starting from the first sample collection date.

No-Observed-Effect-Concentration (NOEC)

The highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle (short-term) test, that causes no observable adverse effects on the test organisms (i.e., the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different from the controls).

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Ocean Waters

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

Percent Effect

The percent effect at the instream waste concentration (IWC) shall be calculated using untransformed data and the following equation:

$$\text{Percent Effect at the IWC} = \frac{\text{Mean Control Response} - \text{Mean IWC Response}}{\text{Mean Control Response}} \cdot 100$$

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

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

Pollution Prevention

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

Satellite Collection System

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

Source of Drinking Water

Any water designated as municipal or domestic supply (MUN) in a Central Valley Water Board Basin Plan.

Standard Deviation (σ)

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

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

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE)

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

ATTACHMENT B – NOTICE OF INTENT
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF
GENERAL ORDER R5-2017-0085
NPDES NO. CAG585001
FOR
MUNICIPAL WASTEWATER DISCHARGERS THAT MEET
OBJECTIVES/CRITERIA AT THE POINT OF DISCHARGE TO SURFACE WATER

To obtain coverage under this General Order, which also serves as the National Pollutant Discharge Elimination System (NPDES) Permit, the Discharger must submit a complete Notice of Intent including the following requirements. Additional information may be requested by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) for a specific discharge.

ALL DISCHARGERS. The following items shall be submitted by all Dischargers applying for coverage under this General Order.

1. Fee Requirements

- Provide the applicable fees. Information concerning the applicable fees can be found at <http://www.waterboards.ca.gov/resources/fees/>. Checks must be made payable to the State Water Resources Control Board.

2. Discharger Information

- Legal name, address, contact person, and phone number for the Facility, Facility Owner, Facility Property Owner, and Facility Operator (agency or business, not a person).

3. Facility Information

- Identification of existing waste discharge requirement order number(s) and NPDES permit number, if applicable;
- Description of plans for growth and/or expansion of facilities, or other modifications, for the next 5 years (complete section 8 if you are requesting an increase in the permitted flow associated with a facility expansion);
- Description of recent upgrades and upgrades anticipated during the next 5 years;
- Description of operational changes or issues resulting from effluent violations and/or plant upset(s), if any, during the last 5 years;
- Indication whether the Facility has reached, or will reach within the next 5 years, 75% of the hydraulic and treatment capacity of its treatment and disposal facilities; and
- Name of receiving water and nearest major downstream water body.
- Facility location site map and flow schematic diagram.
- Assessor Parcel Number for the Facility and the Facility's Discharge Point(s).
- Longitude and latitude of the Facility and the Facility's Discharge Point(s).
- Current design flow and actual flow.

4. Pretreatment Program

Do you have a pretreatment program approved by the Central Valley Water Board?

- Yes - Provide a description of recent and proposed changes to your pretreatment program and industrial users in your service area.
- No.

LOW VOLUME DISCHARGERS. The following items shall be submitted by low volume Dischargers requesting an exception to priority pollutant sampling requirements in section IX.F of the Monitoring and Reporting Program (MRP).

5. Exception for Priority Pollutant Sampling Requirements

- Provide justification that the discharge will have no significant adverse impact on water quality.

EXISTING DISCHARGERS. The following items shall be submitted by existing Dischargers applying for coverage under this General Order.

6. Wastewater Sampling and Analysis Requirements for Existing Dischargers

Is additional representative data for the effluent and/or receiving water available that the Discharger would like to be considered that has not been reported in the California Integrated Water Quality System (CIWQS) during the last 3 years?

- Yes - Provide the analytical data from the laboratory.
- No.

Is the existing discharge from a facility that has undergone a major upgrade for which there is not 3 years of representative data available and the effluent has not been analyzed for the priority pollutants and other constituents of concern listed in Table E-10 in accordance with the specifications in section IX.F of the Monitoring and Reporting Program (Attachment E)?

- Yes - Provide estimated data for the proposed effluent and for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E).
- No.

NEW DISCHARGERS. The following items shall be submitted by new Dischargers applying for coverage under this General Order.

7. Wastewater Sampling and Analysis Requirements for New Dischargers

- If the proposed new discharge is from an operational facility (e.g., a facility that currently discharges to land) and it is feasible to collect a representative sample of the proposed effluent, collect a sample of the proposed effluent and analyze it for the priority pollutants and other constituents of concern listed in Table E-10 in accordance with the specifications in section IX.F of the Monitoring and Reporting Program (Attachment E). Provide the analytical data from the laboratory.

If the proposed new discharge is from a new facility for which construction and startup has not been completed, or a representative sample of the proposed discharge cannot otherwise be collected, provide an engineering report estimating the character of the effluent for the priority pollutants and other constituents of concern listed in Table E-10 of the Monitoring and Reporting Program (Attachment E). (Note that sampling will be required within 18 months for a new facility that is fully operational at the time of the issuance of the Notice of Applicability or within 21 months following completion of construction of a new facility that is not fully operational at the time of the issuance of the Notice of Applicability).

- Collect a sample of the upstream receiving water and analyze it for the priority pollutants and other constituents of concern listed in Table E-10 in accordance with the specifications in section IX.F of the Monitoring and Reporting Program (Attachment E). Provide the analytical data from the laboratory.

NEW AND EXPANDING DISCHARGERS. The following items shall be submitted by Dischargers requesting new or expanding discharges under this General Order.

8. Antidegradation Analysis

- Provide an antidegradation analysis meeting the requirements of 40 C.F.R. 131.12 and State Water Board Resolution No. 68-16, "*Statement of Policy With Respect to Maintaining High Quality of Waters in California*". See Administrative Procedures Update (APU) 90-004 for additional guidance.
- Provide a feasibility study for wastewater disposal, regionalization, and recycled water alternatives.

ULTRAVIOLET LIGHT (UV) DISINFECTION DISCHARGERS. The following items shall be submitted by Dischargers that use UV disinfection.

9. UV Disinfection System Information

Are you requesting site-specific UV disinfection system operating specifications in lieu of the specification in Special Provisions VII.C.4.b.i and ii?

- Yes - Provide a copy of the site-specific engineering study and a copy of the approval letter from the State Water Board, Division of Drinking Water (DDW).
- No - You are not required to provide any additional information regarding the UV disinfection system.

Do you use chlorine within the treatment system for cleaning and/or maintenance purposes?

- Yes - Provide a description of chlorine use and demonstration that chlorine use is managed properly.
- No.

10. CERTIFICATION

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

A. Printed Name: _____

B. Signature: _____

C. Date: _____

D. Title: _____

ATTACHMENT C – SCREENING LEVELS

I. Screening Levels for Priority Pollutants (Excluding Hardness-Based Metals)

To determine the priority pollutants requiring effluent limitations, the Central Valley Water Board will conduct a reasonable potential analysis (RPA) utilizing the effluent and ambient background data as discussed in section V.C.2.b of the Fact Sheet (Attachment F), the screening levels in Tables C-1 through C-2M, and the procedures specified in section 1.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP).

The Central Valley Water Board will identify the maximum effluent concentration (MEC) and maximum background (B) concentration for each priority pollutant and compare this information to the applicable screening level in Tables C-1 through C-2M, which represents the most stringent applicable water quality criterion (C) from the CTR and Basin Plan. Section 1.3 of the SIP establishes three triggers for a finding of reasonable potential:

Trigger 1. If the MEC is greater than C, there is reasonable potential, and the Notice of Applicability from the Executive Officer will specify effluent limitations for the pollutant.

Trigger 2. If B is greater than C, and the pollutant is detected in the effluent (MEC > ND), there is reasonable potential, and the Notice of Applicability from the Executive Officer will specify effluent limitations for the pollutant.

Trigger 3. After a review of other available and relevant information, the Central Valley Water Board may decide that an effluent limitation is required, and the Notice of Applicability from the Executive Officer will specify effluent limitations for the pollutant. Such additional information may include, but is not limited to: the facility type, the discharge type, solids loading analyses, lack of dilution, history of compliance problems, potential toxic impact of the discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303(d) listing for the pollutant, and the presence of endangered or threatened species or their critical habitat.

For priority pollutants that exhibit reasonable potential to cause or contribute to a water quality criterion/objective, the Executive Officer shall indicate the applicable effluent limitations from section V.A.1.b of this General Order in the Notice of Applicability.

Table C-1. Screening Levels for Priority Pollutants

Parameter	Units	Screening Level (Based on MUN ¹)	Screening Level (Based on non MUN ¹)
Antimony	µg/L	6	4,300
Arsenic	µg/L	10	150
Beryllium	µg/L	4	--
Chromium (VI) or total Cr	µg/L	11	11
Mercury	µg/L	0.05	0.051
Selenium	µg/L	5	5
Thallium	µg/L	1.7	6.3
Cyanide	µg/L	5.2	5.2
Asbestos	MFL	7	--
2,3,7,8-TCDD (Dioxin)	µg/L	1.30E-08	1.40E-08
Acrolein	µg/L	320	780
Acrylonitrile	µg/L	0.059	0.66
Benzene	µg/L	1	71
Bromoform	µg/L	4.3	360
Carbon Tetrachloride	µg/L	0.25	4.4
Chlorobenzene	µg/L	70	21,000

MUNICIPAL WASTEWATER DISCHARGERS THAT MEET
OBJECTIVES/CRITERIA AT THE POINT OF DISCHARGE TO SURFACE WATER

ORDER R5-2017-0085
NPDES NO. CAG585001

Parameter	Units	Screening Level (Based on MUN ¹)	Screening Level (Based on non MUN ¹)
Chlorodibromomethane	µg/L	0.41	34
Chloroethane	µg/L	--	--
2-Chloroethylvinyl Ether	µg/L	--	--
Chloroform	µg/L	80	--
Dichlorobromomethane	µg/L	0.56	46
1,1-Dichloroethane	µg/L	5	--
1,2-Dichloroethane	µg/L	0.38	99
1,1-Dichloroethylene	µg/L	0.057	3.2
1,2-Dichloropropane	µg/L	0.52	39
1,3-Dichloropropylene	µg/L	0.5	1,700
Ethylbenzene	µg/L	300	29,000
Methyl Bromide	µg/L	48	4,000
Methyl Chloride	µg/L	--	--
Methylene Chloride	µg/L	4.7	1,600
1,1,1,2-Tetrachloroethane	µg/L	0.17	11
Tetrachloroethylene	µg/L	0.8	8.85
Toluene	µg/L	150	200,000
1,2-Trans-Dichloroethylene	µg/L	10	140,000
1,1,1-Trichloroethane	µg/L	200	--
1,1,2-Trichloroethane	µg/L	0.6	42
Trichloroethylene	µg/L	2.7	81
Vinyl Chloride	µg/L	0.5	525
2-Chlorophenol	µg/L	120	400
2,4-Dichlorophenol	µg/L	93	790
2,4-Dimethylphenol	µg/L	540	2,300
2-Methyl-4,6-Dinitrophenol	µg/L	13.4	765
2,4-Dinitrophenol	µg/L	70	14,000
2-Nitrophenol	µg/L	--	--
4-Nitrophenol	µg/L	--	--
3-Methyl-4-Chlorophenol	µg/L	--	--
Pentachlorophenol	µg/L	0.28	8.2
Phenol	µg/L	21,000	4,600,000
2,4,6-Trichlorophenol	µg/L	2.1	6.5
Acenaphthene	µg/L	1,200	2,700
Acenaphthylene	µg/L	--	--
Anthracene	µg/L	9,600	110,000
Benzidine	µg/L	0.00012	0.00054
Benzo(a)Anthracene	µg/L	0.0044	0.049
Benzo(a)Pyrene	µg/L	0.0044	0.049
Benzo(b)Fluoranthene	µg/L	0.0044	0.049
Benzo(ghi)Perylene	µg/L	--	--
Benzo(k)Fluoranthene	µg/L	0.0044	0.049
Bis(2-Chloroethoxy)Methane	µg/L	--	--
Bis(2-Chloroethyl)Ether	µg/L	0.031	1.4
Bis(2-Chloroisopropyl)Ether	µg/L	1,400	170,000
Bis(2-Ethylhexyl)Phthalate	µg/L	1.8	5.9
4-Bromophenyl Phenyl Ether	µg/L	--	--
Butylbenzyl Phthalate	µg/L	3,000	5,200
2-Chloronaphthalene	µg/L	1,700	4,300
4-Chlorophenyl Phenyl Ether	µg/L	--	--
Chrysene	µg/L	0.0044	0.049
Dibenzo(a,h)Anthracene	µg/L	0.0044	0.049
1,2-Dichlorobenzene	µg/L	600	17,000

MUNICIPAL WASTEWATER DISCHARGERS THAT MEET
OBJECTIVES/CRITERIA AT THE POINT OF DISCHARGE TO SURFACE WATER

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Parameter	Units	Screening Level (Based on MUN ¹)	Screening Level (Based on non MUN ¹)
1,3-Dichlorobenzene	µg/L	400	2,600
1,4-Dichlorobenzene	µg/L	5	2,600
3,3'-Dichlorobenzidine	µg/L	0.04	0.077
Diethyl Phthalate	µg/L	23,000	120,000
Dimethyl Phthalate	µg/L	313,000	2,900,000
Di-n-Butyl Phthalate	µg/L	2,700	12,000
2,4-Dinitrotoluene	µg/L	0.11	9.1
2,6-Dinitrotoluene	µg/L	--	--
Di-n-Octyl Phthalate	µg/L	--	--
1,2-Diphenylhydrazine	µg/L	0.040	0.54
Fluoranthene	µg/L	300	370
Fluorene	µg/L	1,300	14,000
Hexachlorobenzene	µg/L	0.00075	0.00077
Hexachlorobutadiene	µg/L	0.44	50
Hexachlorocyclopentadiene	µg/L	50	17,000
Hexachloroethane	µg/L	1.9	8.9
Indeno(1,2,3-cd) Pyrene	µg/L	0.0044	0.049
Isophorone	µg/L	8.4	600
naphthalene	µg/L	--	--
Nitrobenzene	µg/L	17	1,900
N-Nitrosodimethylamine	µg/L	0.00069	8.1
N-Nitrosodi-n-Propylamine	µg/L	0.005	1.4
N-Nitrosodiphenylamine	µg/L	5.0	16
Phenanthrene	µg/L	--	--
Pyrene	µg/L	960	11,000
1,2,4-Trichlorobenzene	µg/L	5	--
Aldrin	µg/L	0.00013	0.00014
alpha-BHC	µg/L	0.0039	0.013
beta-BHC	µg/L	0.014	0.046
gamma-BHC	µg/L	0.019	0.063
delta-BHC	µg/L	--	--
Chlordane	µg/L	0.00057	0.00059
4,4-DDT	µg/L	0.00059	0.00059
4,4-DDE	µg/L	0.00059	0.00059
4,4-DDD	µg/L	0.00083	0.00084
Dieldrin	µg/L	0.00014	0.00014
alpha-Endosulfan	µg/L	0.056	0.056
beta-Endosulfan	µg/L	0.056	0.056
Endosulfan Sulfate	µg/L	110	240
Endrin	µg/L	0.036	0.036
Endrin Aldehyde	µg/L	0.76	0.81
Heptachlor	µg/L	0.00021	0.00021
Heptchlor Epoxide	µg/L	0.00010	0.00011
PCBs sum ²	µg/L	0.00017	0.00017
Toxaphene	µg/L	0.0002	0.0002

¹ MUN = Municipal and Domestic Supply Beneficial Use.

² This objective applies to the sum of PCB Aroclors 1242, 1254, 1221, 1232, 1248, 1280, and 1016.

II. Screening Levels for Priority Pollutant Hardness-Based Metals

The Central Valley Water Board will conduct an RPA in accordance with the procedures described in section I, above. The screening levels contained in Tables C-2A through C-2D are based on hardness¹. For waters with hardness concentrations less than 100 mg/L, screening levels have been segmented into 5 mg/L increments. For waters with hardness concentrations greater than or equal to 100 mg/L but less than 200 mg/L, screening levels have been segmented into 20 mg/L increments. For waters with hardness concentrations greater than or equal to 200 mg/L but less than 400 mg/L, screening levels have been segmented into 50 mg/L increments. For each segment the mid-point of the segment was used to determine the corresponding effluent limit. For waters with lowest observed hardness concentrations greater than or equal to 400 mg/L, a hardness value of 400 mg/L was used to determine the corresponding effluent limit. The hardness used to select the appropriate screening level shall be determined in accordance with section V.C.2.e of the Fact Sheet (Attachment F).

The applicable screening levels for copper and zinc from Tables C-2A through C-2F shall be multiplied by the site-specific water effect ratios (WER's) in Table C-2M of this General Order for the specified Dischargers.

For the City of Grass Valley, Wastewater Treatment Plant, the screening levels for copper and zinc in Tables C-2G through C-2L shall apply in lieu of those in Tables C-2A through C-2F.

Table C-2A. Screening Levels for Hardness-Dependent Metals – Hardness 0 to < 25 mg/L

Parameter ¹	Units	Hardness in mg/L (H)				
		0 ≤ H < 5	5 ≤ H < 10	10 ≤ H < 15	15 ≤ H < 20	20 ≤ H < 25
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Cadmium	µg/L	0.14	0.32	0.48	0.63	0.76
Chromium (III)	µg/L	10	25	38	50	61
Copper	µg/L	0.40	1.0	1.6	2.1	2.6
Lead	µg/L	0.029	0.12	0.23	0.35	0.48
Nickel	µg/L	2.3	5.8	9	12	15
Silver	µg/L	0.0071	0.047	0.11	0.2	0.31
Zinc	µg/L	5.3	13	21	27	34

¹ All metal concentrations are given as a total recoverable.

Table C-2B. Screening Levels for Hardness Dependent Metals – Hardness 25 to < 50 mg/L

Parameter ¹	Units	Hardness in mg/L (H)				
		25 ≤ H < 30	30 ≤ H < 35	35 ≤ H < 40	40 ≤ H < 45	45 ≤ H < 50
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Cadmium	µg/L	0.89	1.0	1.1	1.3	1.4
Chromium (III)	µg/L	72	82	93	100	110
Copper	µg/L	3.1	3.6	4	4.5	4.9
Lead	µg/L	0.62	0.76	0.91	1.1	1.2
Nickel	µg/L	18	20	23	25	28
Silver	µg/L	0.44	0.59	0.75	0.93	1.1
Zinc	µg/L	40	46	52	58	64

¹ All metal concentrations are given as a total recoverable.

¹ All hardness values are in mg/L as CaCO₃

Table C-2C. Screening Levels for Hardness Dependent Metals – Hardness 50 to < 75 mg/L

Parameter ¹	Units	Hardness in mg/L (H)				
		50 ≤ H < 55	55 ≤ H < 60	60 ≤ H < 65	65 ≤ H < 70	70 ≤ H < 75
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Cadmium	µg/L	1.5	1.6	1.7	1.8	1.9
Chromium (III)	µg/L	120	130	140	150	160
Copper	µg/L	5.4	5.8	6.2	6.7	7.1
Lead	µg/L	1.4	1.6	1.7	1.9	2.1
Nickel	µg/L	30	33	35	37	40
Silver	µg/L	1.3	1.6	1.8	2.1	2.3
Zinc	µg/L	69	75	80	86	91

¹ All metal concentrations are given as a total recoverable.

Table C-2D. Screening Levels for Hardness Dependent Metals – Hardness 75 to ≥ 100 mg/L

Parameter ¹	Units	Hardness in mg/L (H)				
		75 ≤ H < 80	80 ≤ H < 85	85 ≤ H < 90	90 ≤ H < 95	95 ≤ H < 100
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Cadmium	µg/L	2.0	2.1	2.2	2.3	2.4
Chromium (III)	µg/L	170	180	190	190	200
Copper	µg/L	7.5	7.9	8.3	8.7	9.1
Lead	µg/L	2.3	2.5	2.7	2.9	3.1
Nickel	µg/L	42	44	47	49	51
Silver	µg/L	2.6	2.9	3.2	3.5	3.9
Zinc	µg/L	97	100	110	110	120

¹ All metal concentrations are given as a total recoverable.

Table C-2E. Screening Levels for Hardness Dependent Metals – Hardness 100 to ≥ 200 mg/L

Parameter ¹	Units	Hardness in mg/L (H)				
		100 ≤ H < 120	120 ≤ H < 140	140 ≤ H < 160	160 ≤ H < 180	180 ≤ H < 200
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Cadmium	µg/L	2.7	3	3.4	3.7	4.1
Chromium (III)	µg/L	220	260	290	320	350
Copper	µg/L	10	12	13	15	16
Lead	µg/L	3.6	4.4	5.3	6.3	7.2
Nickel	µg/L	57	65	74	82	90
Silver	µg/L	4.8	6.4	8.2	10	12
Zinc	µg/L	130	150	170	190	210

¹ All metal concentrations are given as a total recoverable.

Table C-2F. Screening Levels for Hardness Dependent Metals – Hardness 200 to ≥ 400 mg/L

Parameter ¹	Units	Hardness in mg/L (H)				
		200 ≤ H < 250	250 ≤ H < 300	300 ≤ H < 350	350 ≤ H < 400	H ≥ 400
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Cadmium	µg/L	4.7	5.4	6.2	7	7.3
Chromium (III)	µg/L	400	470	540	610	640
Copper	µg/L	19	22	26	29	30
Lead	µg/L	8.9	12	14	17	19
Nickel	µg/L	100	120	140	160	170
Silver	µg/L	16	23	31	39	44
Zinc	µg/L	240	280	330	370	390

¹ All metal concentrations are given as a total recoverable.

Table C-2G. Screening Levels for Copper and Zinc for City of Grass Valley, Wastewater Treatment Plant – Hardness 0 to < 25 mg/L

Parameter	Units	Hardness in mg/L (H)				
		0 ≤ H < 5	5 ≤ H < 10	10 ≤ H < 15	15 ≤ H < 20	20 ≤ H < 25
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Copper	µg/L	2.8	7.6	12	16	19
Zinc	µg/L	9.0	23	35	47	58

¹ All metal concentrations are given as a total recoverable.

Table C-2H. Screening Levels for Copper and Zinc for City of Grass Valley, Wastewater Treatment Plant – Hardness 25 to < 50 mg/L

Parameter	Units	Hardness in mg/L (H)				
		25 ≤ H < 30	30 ≤ H < 35	35 ≤ H < 40	40 ≤ H < 45	45 ≤ H < 50
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Copper	µg/L	23	26	30	33	37
Zinc	µg/L	69	79	89	99	110

¹ All metal concentrations are given as a total recoverable.

Table C-2I. Screening Levels for Copper and Zinc for City of Grass Valley, Wastewater Treatment Plant – Hardness 50 to < 75 mg/L

Parameter	Units	Hardness in mg/L (H)				
		50 ≤ H < 55	55 ≤ H < 60	60 ≤ H < 65	65 ≤ H < 70	70 ≤ H < 75
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Copper	µg/L	40	43	46	49	53
Zinc	µg/L	120	130	140	150	160

¹ All metal concentrations are given as a total recoverable.

Table C-2J. Screening Levels for Copper and Zinc for City of Grass Valley, Wastewater Treatment Plant – Hardness 75 to \geq 100 mg/L

Parameter	Units	Hardness in mg/L (H)				
		75 \leq H < 80	80 \leq H < 85	85 \leq H < 90	90 \leq H < 95	95 \leq H < 100
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Copper	μ g/L	56	59	62	65	68
Zinc	μ g/L	170	170	180	190	200

All metal concentrations are given as a total recoverable.

Table C-2K. Screening Levels for Copper and Zinc for City of Grass Valley, Wastewater Treatment Plant – Hardness 100 to \geq 200 mg/L

Parameter	Units	Hardness in mg/L (H)				
		100 \leq H < 120	120 \leq H < 140	140 \leq H < 160	160 \leq H < 180	180 \leq H < 200
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Copper	μ g/L	75	87	98	110	120
Zinc	μ g/L	220	260	290	320	350

Table C-2L. Screening Levels for Copper and Zinc for City of Grass Valley, Wastewater Treatment Plant – Hardness 200 to \geq 400 mg/L

Parameter	Units	Hardness in mg/L (H)				
		200 \leq H < 250	250 \leq H < 300	300 \leq H < 350	350 \leq H < 400	H \geq 400
		Screening Level	Screening Level	Screening Level	Screening Level	Screening Level
Copper	μ g/L	140	160	190	210	230
Zinc	μ g/L	410	480	560	630	660

Table C-2M. Site Specific Water Effect Ratios for Copper and Zinc

Discharger	Individual Order / NPDES No.	Site-Specific WER Copper	Site-Specific WER Zinc
City of Auburn, Wastewater Treatment Plant	R5-2016-0038 / CA0077712	3.52	--
Donner Summit Public Utility District, Wastewater Treatment Plant	R5-2015-0068 / CA0081621	2.72	--
City of Galt, Wastewater Treatment Plant and Reclamation Facility	R5-2015-0123 / CA0081434	15	--
City of Grass Valley, Wastewater Treatment Plant	R5-2016-0012 / CA0079898	6.49	1.70
Cutler-Orosi Joint Powers Wastewater Authority, Wastewater Treatment Facility	R5-2013-0047-01 / CA0081485	3.1	--
El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant	R5-2014-0081 / CA0078662	9.7	1.7
El Dorado Irrigation District, El Dorado Hills Wastewater Treatment Plant	R5-2013-0003 / CA0078671	8.05	--
United Auburn Indian Community, Thunder Valley Wastewater Treatment Plant	R5-2015-0077 / CA0084697	24.5	--

Discharger	Individual Order / NPDES No.	Site-Specific WER Copper	Site-Specific WER Zinc
United States Department of the Interior, National Park Service, Yosemite National Park, El Portal Wastewater Treatment Facility	R5-2014-0068 / CA0081759	2.0	--

III. Screening Levels for Other Constituents of Concern

To determine the constituents requiring effluent limitations, the Central Valley Water Board will conduct an RPA utilizing the effluent and ambient background data as discussed in section V.C.2.b of the Fact Sheet (Attachment F), the screening levels in Table C-3, and the constituent-specific procedures specified in section V.C.3.b of the Fact Sheet (Attachment F).

For waters with the MUN use, the Central Valley Water Board will conduct the RPA for chloride, fluoride, manganese, methylene blue active substances (MBAS or foaming agents), and electrical conductivity by comparing the maximum observed calendar year annual average effluent concentration to the screening level. The Central Valley Water Board will conduct the RPA for nitrite by comparing the maximum effluent nitrite concentration to the screening level.

For aluminum, the applicable screening levels shall be applied as follows:

- A. If the Central Valley Water Board determines that the National Ambient Water Quality Criteria (NAWQC) chronic criterion is not applicable to a receiving water with the municipal and domestic supply (MUN) use, the screening level will be based on the Secondary MCL of 200 µg/L. The Central Valley Water Board will conduct the RPA by comparing the maximum observed calendar year annual average effluent aluminum concentration to the screening level.
- B. If the Central Valley Water Board determines that the NAWQC chronic criterion is not applicable to a receiving water without the MUN use, the screening level will be based on the NAWQC acute criterion of 750 µg/L. The Central Valley Water Board will conduct the RPA by comparing the maximum observed effluent aluminum concentration to the screening level.
- C. If the Central Valley Water Board determines that the NAWQC chronic criterion is applicable to a receiving water, the screening level will be based on the NAWQC chronic criterion. The Central Valley Water Board will conduct the RPA by comparing the maximum observed effluent aluminum concentration to the screening level.

Table C-3. Screening Levels for Other Constituents of Concern

Parameter	Units	Screening Level (Based on MUN ¹)	Screening Level (Based on non-MUN ¹)
Aluminum	µg/L	87 or 200 ²	87 or 750 ²
Chloride	mg/L	250	--
Fluoride, Total	mg/L	2	--
Foaming Agents (MBAS)	mg/L	0.5	--
Manganese	µg/L	50	--
Nitrite Nitrogen, Total (as N)	mg/L	1	--
Electrical Conductivity @ 25°C	µmhos/cm	900	--

¹ MUN = Municipal and Domestic Supply Beneficial Use.

² See section V.C.3.b of the Fact Sheet for a discussion of the appropriate screening level for aluminum.

IV. Screening Levels for Ammonia

The Central Valley Water Board finds the discharges covered by this General Order have reasonable potential for ammonia and effluent limitations are required. The screening levels in Tables C-4 and C-5A through C-5B shall be used to determine the appropriate effluent limitations for ammonia from Tables 15A through 16D of this General Order, which shall be specified in the Notice of Applicability.

A. Acute Criterion (CMC)

The Central Valley Water Board will determine the 1-hour criterion maximum concentration (CMC or acute criterion) based on the maximum permitted pH or on the maximum observed effluent pH, whichever is lower. The Central Valley Water Board will evaluate site-specific information to determine the presence or absence of salmonids in the receiving water, including the applicability of the cold freshwater habitat (COLD). If the Central Valley Water Board determines that salmonids are present or potentially present in the receiving water, the screening level shall be selected from the “Salmonids Present” column. If the Central Valley Water Board determines that the salmonids are not present in the receiving water, the screening level shall be selected from the “Salmonids Absent” column. See section V.A.1.c.iv of this General Order for the applicable effluent limitations for pH.

Table C-4. Screening Levels for Ammonia – Acute Criterion (CMC)

pH	CMC in mg/L	
	Ammonia Nitrogen (as N)	
	Salmonids Present	Salmonids Absent
7.8	8.11	12.0
7.9	6.77	10.0
8.0	5.62	8.41
8.1	4.64	6.95
8.2	3.83	5.73
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.880	1.32

B. Chronic Criterion (CCC)

The Central Valley Water Board will determine the 30-day criterion continuous concentration (CCC or chronic criterion) based on downstream receiving water pH and temperature data. If at least monthly paired pH and temperature receiving water data are available, the CCC will be determined by selecting a CCC from Tables C-5A and C-5B for each day when paired data are available, calculating a rolling 30-day average CCC, and selecting the minimum observed 30-day CCC. If sufficient paired receiving water data are not available, the CCC will be selected from Tables C-5A and C-5B using the maximum observed pH and 30-day average temperature of the downstream receiving water.

Table C-5A. Screening Levels for Ammonia – Chronic Criterion (CCC)

pH	Temperature °C								
	0	14	15	16	17	18	19	20	21
6.5	6.67	6.67	6.46	6.06	5.68	5.33	4.99	4.68	4.39
6.6	6.57	6.57	6.36	5.97	5.59	5.25	4.92	4.61	4.32
6.7	6.44	6.44	6.25	5.86	5.49	5.15	4.83	4.52	4.24
6.8	6.29	6.29	6.10	5.72	5.36	5.03	4.72	4.42	4.14
6.9	6.12	6.12	5.93	5.56	5.21	4.89	4.58	4.30	4.03
7.0	5.91	5.91	5.73	5.37	5.04	4.72	4.43	4.15	3.89
7.1	5.67	5.67	5.49	5.15	4.83	4.53	4.25	3.98	3.73
7.2	5.39	5.39	5.22	4.90	4.59	4.31	4.04	3.78	3.55
7.3	5.08	5.08	4.92	4.61	4.33	4.06	3.80	3.57	3.34
7.4	4.73	4.73	4.59	4.30	4.03	3.78	3.55	3.32	3.12
7.5	4.36	4.36	4.23	3.97	3.72	3.49	3.27	3.06	2.87
7.6	3.98	3.98	3.85	3.61	3.39	3.18	2.98	2.79	2.62
7.7	3.58	3.58	3.47	3.25	3.05	2.86	2.68	2.51	2.36
7.8	3.18	3.18	3.09	2.89	2.71	2.54	2.38	2.23	2.10
7.9	2.80	2.80	2.71	2.54	2.38	2.24	2.10	1.96	1.84
8.0	2.43	2.43	2.36	2.21	2.07	1.94	1.82	1.71	1.60
8.1	2.10	2.10	2.03	1.91	1.79	1.68	1.57	1.47	1.38
8.2	1.79	1.79	1.74	1.63	1.53	1.43	1.34	1.26	1.18
8.3	1.52	1.52	1.48	1.39	1.30	1.22	1.14	1.07	1.00
8.4	1.29	1.29	1.25	1.17	1.10	1.03	0.966	0.906	0.849
8.5	1.09	1.09	1.06	0.990	0.928	0.870	0.816	0.765	0.717
8.6	0.920	0.920	0.892	0.836	0.784	0.735	0.689	0.646	0.606
8.7	0.778	0.778	0.754	0.707	0.663	0.622	0.583	0.547	0.512
8.8	0.661	0.661	0.641	0.601	0.563	0.528	0.495	0.464	0.435
8.9	0.565	0.565	0.548	0.513	0.481	0.451	0.423	0.397	0.372
9.0	0.486	0.486	0.471	0.442	0.414	0.389	0.364	0.342	0.320

Table C-5B. Screening Levels for Ammonia – Chronic Criterion (CCC)

pH	Temperature °C								
	22	23	24	25	26	27	28	29	30
6.5	4.12	3.86	3.62	3.39	3.18	2.98	2.80	2.62	2.46
6.6	4.05	3.80	3.56	3.34	3.13	2.94	2.75	2.58	2.42
6.7	3.98	3.73	3.50	3.28	3.07	2.88	2.70	2.53	2.37
6.8	3.89	3.64	3.42	3.20	3.00	2.82	2.64	2.47	2.32
6.9	3.78	3.54	3.32	3.11	2.92	2.74	2.57	2.41	2.25
7.0	3.65	3.42	3.21	3.01	2.82	2.64	2.48	2.32	2.18
7.1	3.50	3.28	3.08	2.88	2.70	2.53	2.38	2.23	2.09
7.2	3.33	3.12	2.92	2.74	2.57	2.41	2.26	2.12	1.99
7.3	3.13	2.94	2.76	2.58	2.42	2.27	2.13	2.00	1.87
7.4	2.92	2.74	2.57	2.41	2.26	2.12	1.98	1.86	1.74
7.5	2.69	2.53	2.37	2.22	2.08	1.95	1.83	1.72	1.61
7.6	2.45	2.30	2.16	2.02	1.90	1.78	1.67	1.56	1.47
7.7	2.21	2.07	1.94	1.82	1.71	1.60	1.50	1.41	1.32
7.8	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
7.9	1.73	1.62	1.52	1.42	1.33	1.25	1.17	1.10	1.03
8.0	1.50	1.41	1.32	1.24	1.16	1.09	1.02	0.957	0.897
8.1	1.29	1.21	1.14	1.07	1.00	0.938	0.879	0.824	0.773
8.2	1.11	1.04	0.973	0.912	0.855	0.802	0.752	0.705	0.661
8.3	0.941	0.882	0.827	0.775	0.727	0.682	0.639	0.599	0.562
8.4	0.796	0.747	0.700	0.656	0.615	0.577	0.541	0.507	0.475
8.5	0.672	0.630	0.591	0.554	0.520	0.487	0.457	0.428	0.401
8.6	0.568	0.532	0.499	0.468	0.439	0.411	0.386	0.362	0.339
8.7	0.480	0.450	0.422	0.396	0.371	0.348	0.326	0.306	0.287
8.8	0.408	0.383	0.359	0.336	0.315	0.296	0.277	0.260	0.244
8.9	0.349	0.327	0.306	0.287	0.269	0.253	0.237	0.222	0.208
9.0	0.300	0.281	0.264	0.247	0.232	0.217	0.204	0.191	0.179

V. Screening Levels for Site-Specific Water Bodies

The Central Valley Water Board will also conduct an RPA for any constituent with site-specific water quality objectives applicable to the receiving water body listed in the Basin Plans, as follows:

A. Basin Plan for the Sacramento and San Joaquin River Basins

1. Table III-1: Trace Element Water Quality Objectives
2. Table III-2A: Specific Pesticide Objectives
3. Table III-3: Electrical Conductivity and Total Dissolved Solids

B. Basin Plan for the Tulare Lake Basin

1. Table III-2: Maximum Electrical Conductivity Levels
2. Table III-3: Electrical Conductivity Objectives at Selected Streamflow Stations

ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, § 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, § 13267, 13383); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

- a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)
- b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).) For purposes of this Order, the Discharger shall apply by submitting a Notice of

Intent for coverage under the relevant renewed General Order or apply for and obtain an individual permit.

C. Transfers

Notices of Applicability under this Order are not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Notice of Applicability to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); 122.61.)

III. STANDARD PROVISIONS – MONITORING

- A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)
- B.** Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when the method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N or O for the measured pollutant or pollutant parameter, or when:
 - 1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and:
 - a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;
 - b. The method ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. § 122.21(e)(3); 122.41(j)(4); 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)
- B.** Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
 3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
 4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
 5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
 6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)
- C.** Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):
1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
 2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications (including Notices of Intent), reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed in accordance with the following:
 - a. For a corporation, all permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)
 - b. For a partnership or sole proprietorship, all permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

- c. For a municipality, state, federal, or other public agency, all permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).)
3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
 - c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

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

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required

for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of 21 December 2020, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient (State Water Board) defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3. The Central Valley Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(6)(i).)

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged (if the discharge is not an existing manufacturing, commercial, mining, or silvicultural discharge). This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

The alteration or addition could significantly change the nature or increase the quantity of

pollutants discharged (if the discharge is an existing manufacturing, commercial, mining, or silvicultural discharge). This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Central Valley Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Valley Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the appropriate initial recipient, as determined by U.S. EPA, and as defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 C.F.R. § 122.41(l)(9).)

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTW's)

All POTW's shall provide adequate notice to the Central Valley Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.
- B.** Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen, turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, dissolved oxygen, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E.** Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- F.** Laboratories analyzing monitoring samples shall be certified by DDW, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.
- G.** Major Dischargers shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Resources Control Board at the following address:

State Water Resources Control Board Quality Assurance Program Officer
Office of Information Management and Analysis
State Water Resources Control Board
1001 I Street, Sacramento, CA 95814

- H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.
- J. Some facilities may have multiple discharge points, ponds, receiving waters, or other monitoring locations. Site-specific monitoring requirements will be included in the Notice of Applicability. Dischargers with multiple discharge points will have additional monitoring locations and requirements that will be specified in the Notice of Applicability.

II. MONITORING LOCATIONS

Each Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this General Order as applicable. The Executive Officer may specify in the Notice of Applicability additional discharge points and/or monitoring locations than those listed in Table E-1.

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the Facility influent can be obtained prior to any additives, treatment processes, and plant return flows. ⁵
001 ^{1,2}	EFF-001	A location where a representative sample of the effluent can be collected prior to discharging to surface water.
--	RSW-001	The receiving water, upstream of the discharge point, as defined in the Notice of Applicability.
--	RSW-002	The receiving water, downstream of the discharge point, as defined in the Notice of Applicability.
--	PND-001	A location where a representative sample from equalization, storage, and treatment ponds can be obtained.
--	BIO-001	A location where a representative sample of the biosolids can be obtained.
--	FIL-001 ³	A location where a representative sample of the influent to the filtration system can be obtained.
--	FIL-002 ³	A location where a representative sample of the effluent from the filtration system can be obtained.
--	UVS-001 ⁴	A location where a representative sample of wastewater can be collected upstream or downstream of the ultraviolet light (UV) disinfection system.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	SPL-001	A location where a representative sample of the municipal supply water can be obtained. If this is impractical, water quality data provided by the water supplier(s) may be used.

- ¹ Dischargers enrolled under this General Order for more than one discharge point must comply with effluent limitations and monitoring requirements at each discharge point.
- ² Additional discharge points may be added following the naming conventions used in Table E-1, above.
- ³ Applicable only to Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order.
- ⁴ Only required for Dischargers utilizing UV disinfection systems.
- ⁵ For the City of Placerville, monitoring location INF-001 is located at the composite sampler after the grit chamber and before the Parshall flume.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

- 1. Each Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as specified in the Notice of Applicability. The Executive Officer may specify in the Notice of Applicability alternate sample types and/or monitoring frequencies than those listed in Table E-2 below.

Table E-2. Influent Monitoring

Parameter	Units	Sample Type ³	Sampling Frequency ³		Required Analytical Test Method
			Major Discharger	Minor Discharger	
Flow	MGD	Meter	Continuous	Continuous	--
Conventional Pollutants					
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite ¹	1/Week	2/Month	²
Total Suspended Solids	mg/L	24-hr Composite ¹	1/Week	2/Month	²

- ¹ 24-hour flow proportional composite.
- ² Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136; or by methods approved by the Central Valley Water Board or the State Water Board.
- ³ Required sample type and frequency unless otherwise specified in the Notice of Applicability.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

- 1. Each Discharger shall monitor treated domestic wastewater at Monitoring Location EFF-001 (see also General Monitoring Provision J) for the applicable constituents identified in the Notice of Applicability. Not all Dischargers enrolled under this General Order will be required to monitor all the constituents listed in Table E-3. The specific monitoring requirements for a Discharger enrolled under this General Order will be contained in the Discharger’s Notice of Applicability. The Executive Officer may specify in the Notice of Applicability alternate sample types and/or more frequent monitoring frequencies than those listed in Table E-3 below. If there was no discharge to receiving water during the designated monitoring period, monitoring is not required for that period. If there was no discharge, the Discharger shall so state in the monthly SMR. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level.

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type ¹	Sampling Frequency ¹		Required Analytical Test Method
			Major Discharger	Minor Discharger	
Flow	MGD	Meter	Continuous	Continuous	--
Conventional Pollutants					
Biochemical Oxygen Demand (5-day @ 20° C)	mg/L	24-hr Composite ²	1/Week	1/Week	3
	lbs/day	Calculate	1/Week	1/Week	--
pH	standard units	Grab ⁴	1/Week ^{5,6}	1/Week ^{5,6}	3
Total Suspended Solids	mg/L	24-hr Composite ²	1/Week	1/Week	3
	lbs/day	Calculate	1/Week	1/Week	--
Priority Pollutants					
Arsenic, Total Recoverable	µg/L	Grab ⁴	1/Month	7	3,8
Alpha-BHC	µg/L	Grab ⁴	1/Month	7	3,8
Beta Endosulfan	µg/L	Grab ⁴	1/Month	7	3,8
Bis (2-ethylhexyl) Phthalate	µg/L	Grab ⁴	1/Quarter	7	3,8,9
Dichlorobromomethane	µg/L	Grab ⁴	1/Month	1/Month	3,8
Chloroform	µg/L	Grab ⁴	1/Month	7	3,8
Copper, Total Recoverable	µg/L	Grab ⁴	1/Quarter	1/Quarter	3,8
Cyanide, Total (as CN)	mg/L	Grab ⁴	1/Month	7	3,8
Dibromochloromethane	µg/L	Grab ⁴	1/Month	7	3,8
Endrin Aldehyde	µg/L	Grab ⁴	1/Month	7	3,8
Heptachlor	µg/L	Grab ⁴	1/Month	7	3,8
Heptachlor Epoxide	µg/L	Grab ⁴	1/Month	7	3,8
Lead, Total Recoverable	µg/L	Grab ⁴	1/Quarter	1/Quarter	3,8
Mercury, Total Recoverable	ng/L	Grab ⁴	1/Year	1/Year	3,8,10
Selenium, Total Recoverable	µg/L	Grab ⁴	1/Quarter	7	3,8
Tetrachloroethylene	µg/L	Grab ⁴	1/Month	7	3,8
Zinc, Total Recoverable	µg/L	Grab ⁴	1/Quarter	1/Quarter	3,8
Non-Conventional Pollutants					
Aluminum, Total Recoverable	µg/L	Grab ⁴	1/Month	1/Month	3
Ammonia Nitrogen, Total (as N)	mg/L	Grab ⁴	1/Month ^{5,11}	1/Month ^{5,11}	3
	lbs/day	Calculate	1/Month	1/Month	--
Boron, Total Recoverable	mg/L	Grab ⁴	1/Month	7	3
Chloride	mg/L	Grab ⁴	1/Month	7	3
Chlorine, Total Residual ¹²	mg/L	Meter	Continuous	Continuous	3,13
Chlorine, Total Residual	mg/L	Grab ⁴	1/Day ¹⁴	1/Day ¹⁴	3,13
Chlorpyrifos	µg/L	Grab ⁴	1/Year	1/Year	3,15
Diazinon	µg/L	Grab ⁴	1/Year	1/Year	3,15
Dissolved Oxygen	mg/L	Grab ⁴	2/Month	2/Month	3
Electrical Conductivity @ 25°C	µmhos/cm	Grab ⁴	1/Quarter	1/Quarter	3
Fluoride, Total	mg/L	Grab ⁴	1/Month	7	3

Parameter	Units	Sample Type ¹	Sampling Frequency ¹		Required Analytical Test Method
			Major Discharger	Minor Discharger	
Foaming Agents (MBAS)	mg/L	Grab ⁴	1/Month	⁷	3
Hardness, Total (as CaCO ₃)	mg/L	Grab ⁴	1/Quarter ¹⁶	1/Quarter ¹⁶	3
Manganese, Total Recoverable	µg/L	Grab ⁴	1/Month	1/Month	3
Methylmercury	µg/L	Grab ⁴	1/Month	⁷	3,10
Nitrate Plus Nitrite (as N)	mg/L	Grab ⁴	1/Month	1/Month	3
Nitrate Nitrogen, Total (as N)	mg/L	Grab ⁴	1/Month	1/Month	3
Nitrite Nitrogen, Total (as N)	mg/L	Grab ⁴	1/Month	1/Month	3
Nitrogen, Total (as N)	mg/L	Grab ⁴	1/Week	⁷	3
Peracetic Acid	mg/L	Meter or Grab ⁴	1/Day ¹⁷	1/Day ¹⁷	3
Phosphorus	mg/L	Grab ⁴	⁷	2/Month	3
Temperature	°C	Grab ⁴	1/Week ^{5,6}	1/Week ^{5,6}	3
Total Coliform Organisms	MPN/100 mL	Grab ⁴	1/Week ¹⁸	1/Week ¹⁸	3
Total Dissolved Solids	mg/L	Grab ⁴	1/Month	1/Quarter	3

¹ Required sample type and frequency unless otherwise specified in the Notice of Applicability.

² 24-hour flow proportional composite.

³ Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

⁴ A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.

⁵ pH and temperature shall be recorded at the time of ammonia sample collection.

⁶ A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

⁷ If monitoring is required, then the monitoring frequency shall be specified in the Notice of Applicability from the Executive Officer.

⁸ For priority pollutant constituents the reporting level shall be consistent with Sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, section IX.F).

⁹ In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

¹⁰ Unfiltered methylmercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a reporting limit of 0.05 ng/L for methylmercury and 0.5 ng/L for total mercury.

¹¹ Concurrent with whole effluent toxicity monitoring

¹² Applicable to Dischargers utilizing chlorine disinfection systems.

¹³ Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.

¹⁴ Chlorine residual monitoring is required at a minimum of once per day on each day chlorine is used to maintain treatment process equipment. In addition, the Discharger shall monitor chlorine residual for three consecutive days after each day chlorine is used to maintain treatment process equipment. Monitoring is not required for the use of chlorinated potable water for filter backwashing. When chlorine or chlorine-containing products are not used to maintain treatment process equipment, the Discharger shall so state in the monthly

Parameter	Units	Sample Type ¹	Sampling Frequency ¹		Required Analytical Test Method
			Major Discharger	Minor Discharger	

self-monitoring report. After a calendar year following the effective date of the permit, total chlorine residual data will be reviewed to determine if continued monitoring is warranted. The Discharger may discontinue chlorine monitoring once a calendar year of non-detects is established.

- ¹⁵ Chlorpyrifos and diazinon shall be sampled using U.S. EPA Method 625M, Method 8141, or equivalent GC/MS method.
- ¹⁶ Hardness samples shall be collected concurrently with metals samples.
- ¹⁷ Peracetic acid residual monitoring is only required when peracetic acid is used in the disinfection process.
- ¹⁸ Samples for total coliform organisms may be collected at any point following disinfection.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. Monitoring Frequency – Major and minor Dischargers shall perform annual acute toxicity testing, concurrent with effluent ammonia sampling. The Executive Officer may specify alternate monitoring frequencies in the Notice of Applicability.
2. Sample Types – Each Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be flow proportional 24-hour composites or grab samples, as specified in the Notice of Applicability, and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.
3. Test Species – The test species shall be fathead minnows (*Pimephales promelas*) or rainbow trout (*Oncorhynchus mykiss*), as specified in the Notice of Applicability.
4. Test Duration – Test duration shall be 96 hours.
5. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
6. Test Failure – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

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

1. Monitoring Frequency – Major Dischargers shall perform chronic toxicity testing during quarters in which there is a discharge to receiving water. Minor Dischargers shall perform quarterly chronic toxicity testing for the first four quarters after the effective date of the Notice of Applicability and annually thereafter. The Executive Officer may specify more frequent monitoring in the Notice of Applicability. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by the result greater than 1.3 TUc (as 100/EC₂₅) AND a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring chronic toxicity testing events in order to calculate a median. The optional compliance monitoring events shall occur at least one week apart, and the final monitoring event

shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity.

2. Sample Types – Effluent samples shall be flow proportional 24-hour composites or grab samples, as specified in the Notice of Applicability, and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001 and/or additional effluent monitoring locations specified in the Notice of Applicability. The receiving water control shall be a grab sample obtained from the respective upstream receiving water sampling location for each effluent discharge point (Monitoring Location RSW-001 or respective upstream receiving water sampling location), as identified in this Monitoring and Reporting Program.
3. Sample Volumes – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. Test Species – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with one of the following species that is the most sensitive:
 - a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Selenastrum capricornutum* (growth test).
5. Most Sensitive Species Determination – The Discharger shall determine the most sensitive species of the three test species specified above. The species demonstrating the highest percent effect at the instream waste concentration from the first four quarterly monitoring events will be considered the most sensitive species and shall be used for chronic toxicity testing for the remainder of the permit term, except where documented issues with the sample analysis or related to the sample analysis prevent a clear selection of the most sensitive species. A Discharger may use the four most recent tests conducted prior to receiving a Notice of Applicability for use in determining the most sensitive species, if the tests were conducted in a manner consistent sufficient to make such determination. The Discharger shall request Executive Officer approval of the most sensitive species determination after conducting the four sets of quarterly chronic toxicity monitoring events. If the Executive Officer approval has not been received, all three species must be tested as described in section V.B.1 Monitoring Frequency above until Executive Officer approval is granted.
6. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.
7. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
8. Dilutions – The chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted Toxicity Reduction Evaluation (TRE) Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions ^a (%)					Control
	100	75	50	25	12.5	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

^a Receiving water control or laboratory water control may be used as the diluent.

9. **Test Failure** – Each Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
 - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VII.C.2.a.iii of the Order.)
- C. WET Testing Notification Requirements.** Each Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular monitoring, or an exceedance of the acute toxicity effluent limitation.
- D. WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory’s complete report provided to the Discharger and shall be in accordance with the appropriate “Report Preparation and Test Review” sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:
1. **Chronic WET Reporting.** Chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the quarterly self-monitoring report, and shall contain, at minimum:
 - a. The results expressed in TUC, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
 - b. The percent effect at the instream waste concentration;
 - c. The statistical methods used to calculate endpoints;
 - d. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
 - e. The dates of sample collection and initiation of each toxicity test; and
 - f. The results compared to the numeric toxicity monitoring trigger or effluent limitation.

Additionally, the quarterly self-monitoring report (SMR) shall contain an updated chronology of chronic toxicity test results expressed in TUC and percent effect at the

instream waste concentration, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, monthly median, or TRE.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the quarterly SMR and reported as percent survival.
3. **TRE or Toxicity Evaluation Study Reporting.** Reports for TREs or a Toxicity Evaluation Study shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.
4. **Quality Assurance (QA).** Each Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Location RSW-001 and RSW-002

Each Discharger shall implement the Receiving Water Monitoring Requirements in Attachment E, section VIII.A of this Order. However, in lieu of conducting the individual monitoring specified in Attachment E, section VIII.A of this Order (including visual observations) Dischargers located within the legal boundaries of the Sacramento–San Joaquin River Delta may elect to participate in the Delta Regional Monitoring Program¹. Dischargers may choose to conduct all or part of the receiving water monitoring through the Delta Regional Monitoring Program. If a Discharger elects to cease all or part of the individual receiving water monitoring and instead participates in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative informing the Board that the Discharger will participate in the Delta Regional Monitoring Program, and the date on which individual receiving water monitoring required under Attachment E, section VIII.A will cease, or be modified, and specific monitoring locations and constituent combinations that will no longer be conducted individually. Written approval of the Discharger's request, by the Executive Officer, is required prior to discontinuing part or all of individual receiving water monitoring. Approval by the Executive Officer is not required prior to participating in the Delta Regional Monitoring Program.

If a Discharger participates in the Delta Regional Monitoring Program in lieu of conducting individual receiving water monitoring, the Discharger shall continue to participate in the Delta

¹ If a Discharger elects to participate in the Delta Regional Monitoring Program, it shall continue to submit receiving water data for temperature. At a minimum, the results from one representative upstream receiving water temperature sample shall be submitted annually for the month of January. The temperature data shall be submitted in the January self-monitoring report and will be used to determine compliance with the temperature effluent limitation. Temperature data may be collected by the Discharger for this purpose or the Discharger may submit representative temperature data from the Delta Regional Monitoring Program or other appropriate monitoring programs (e.g., Department of Water Resources, United States Geological Survey).

Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta Regional Monitoring Program will cease and individual monitoring is reinstated. Receiving water monitoring under Attachment E, section VIII.A, is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. If the Discharger fails to adequately support the Delta Regional Monitoring Program, as defined by the Delta Regional Monitoring Program Steering Committee, the Discharger shall reinstate individual receiving water monitoring under Attachment E, section VIII.A, upon written notice from the Executive Officer. During participation in the Delta Regional Monitoring Program, the Discharger may conduct and submit any or part of the receiving water monitoring included in this Monitoring and Reporting Program that is deemed appropriate by the Discharger.

Delta Regional Monitoring Program data are not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Permit. Delta Regional Monitoring Program monitoring stations are established generally as "integrator sites" to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent, but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring Program monitoring data, along with individual Discharger data, may be used to help establish background receiving water quality for reasonable potential analyses in an NPDES permit after evaluation of the applicability of the data for that purpose. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

During the period of participation in the Delta Regional Monitoring Program, the Discharger shall continue to report any individually conducted receiving water monitoring data in the Electronic Self-Monitoring Reports (eSMR) according to the Monitoring and Reporting Program. In addition, 1) with each submitted eSMR, the Discharger's eSMR cover letter shall state that the Discharger is participating in the Delta Regional Monitoring Program in lieu of conducting the individual receiving water monitoring program required by the permit, and 2) with each annual report, the Discharger shall attach a copy of the letter originally submitted to the Central Valley Water Board describing the monitoring location(s) and constituent combinations that will no longer be conducted individually.

1. Each Discharger, except the Calaveras County Water District, Copper Cove Wastewater Reclamation Facility and the Nevada County Sanitation District No. 1, Cascade Shores Wastewater Treatment Plant, shall monitor the receiving water at Monitoring Locations RSW-001 and RSW-002 (see also General Monitoring Provision J) for the constituents identified in the Notice of Applicability as follows. If there was no discharge to receiving water during the designated monitoring period, monitoring is not required during that period. If there is no upstream flow in the receiving water during the designated monitoring period, monitoring is not required at RSW-001 during that period. Whenever monitoring is not required, the Discharger shall state so in the monthly SMR. The Executive Officer may specify in the Notice of Applicability alternate sample types and/or monitoring frequencies than those listed in Table E-5 below.

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type ¹	Sampling Frequency ¹		Required Analytical Test Method
			Major Discharger	Minor Discharger	
Conventional Pollutants					
pH	standard units	Grab ^{2,3}	1/Month	1/Quarter	4
Non-Conventional Pollutants					
Dissolved Oxygen	mg/L	Grab ^{2,3}	1/Month	1/Quarter	4
Electrical Conductivity @ 25°C	µmhos/cm	Grab ^{2,3}	5	5	4
Hardness, Total (as CaCO ₃)	mg/L	Grab ³	1/Quarter	1/Quarter	4
Temperature	°C	Grab ^{2,3}	1/Month	1/Quarter	4
Total Dissolved Solids	mg/L	Grab ³	Not Required	Not Required	4
Turbidity	NTU	Grab ³	Not Required	Not Required	4

- ¹ Required sample type and frequency unless otherwise specified in the Notice of Applicability.
 - ² A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
 - ³ A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.
 - ⁴ Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
 - ⁵ If monitoring is required, then the monitoring frequency shall be specified in the Notice of Applicability from the Executive Officer.
2. In conducting the receiving water sampling required by section VIII.A.1 above, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-002. Attention shall be given to the presence or absence of:
 - a. Floating or suspended matter;
 - b. Discoloration;
 - c. Bottom deposits;
 - d. Aquatic life;
 - e. Visible films, sheens, or coatings;
 - f. Fungi, slimes, or objectionable growths; and
 - g. Potential nuisance conditions.

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

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

- a. As specified in the Notice of Applicability, Dischargers shall conduct biosolids monitoring as specified below. Dischargers with biosolids monitoring required under separate WDRs will not be subject to these specifications, but biosolids to meet pretreatment requirements under Reporting Requirement D.5 shall still apply.

- b. A composite sample of sludge shall be collected at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested as follows:
 - i. Dischargers with a flow <1.0 MGD shall monitor for the metals listed in Title 22 annually.
 - ii. Dischargers with flows between 1 MGD and 5 MGD shall monitor for the metals listed in Title 22 annually and for priority pollutants listed in 40 C.F.R. part 122, Appendix D, Tables II and III (excluding total phenols) once during the permit term.
 - iii. Dischargers with flows between 5 MGD and 10 MGD shall monitor for the metals listed in Title 22 quarterly and the priority pollutants listed in 40 C.F.R. part 122, Appendix D, Tables II and III (excluding total phenols) annually.
 - iv. Dischargers with flows greater than 10 MGD shall monitor for the priority pollutants listed in 40 C.F.R. part 122, Appendix D, Tables II and III (excluding total phenols) quarterly.
- c. Biosolids monitoring shall be conducted using the methods in Test Methods for Evaluating Solid Waste, Physical/Chemical methods (EPA publication SW-846), as required in 40 C.F.R. section 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in "100% dry weight" or "as is."

B. Ponds

1. Monitoring Location PND-001

- a. For all basins or ponds specified in the Notice of Applicability, the Discharger shall keep a log regarding the use of the basin(s). In particular, the Discharger shall record the following when any type of wastewater is directed to the basin:
 - i. The date(s) when the wastewater is directed to the basin;
 - ii. The type(s) of wastewater (e.g., untreated due to plant upset, tertiary treated, etc.) directed to the basin;
 - iii. The total volume of wastewater directed to the basin (volume may be estimated);
 - iv. The duration of time wastewater is collected in the basin prior to redirection back to the other units of the wastewater treatment plant; and
 - v. The daily freeboard in the basin.
- b. For unlined basins or ponds, the Discharger shall monitor equalization, storage, and treatment ponds at Monitoring Location PND-001 (see also General Monitoring Provision J) for the parameters in Table E-6 or as identified in the Notice of Applicability. When equalization or storage ponds hold wastewater for less than seven consecutive days, monitoring shall not be required. **If monitoring is not required, the Discharger shall so state in the SMR.** The Executive Officer may specify in the Notice of Applicability additional pond monitoring locations, alternate sample types, and/or alternate monitoring frequencies than those listed in Table E-6 below.

Table E-6. Pond Monitoring Requirements

Parameter	Units	Sample Type ³	Sampling Frequency ³	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Month	1, 2
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	1, 2
Odors	--	Grab	1/Month	--
pH	standard units	Grab	1/Month	1, 2

- ¹ Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
- ² A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer’s instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
- ³ Required sample type and frequency unless otherwise specified in the Notice of Applicability. A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.

C. Municipal Water Supply

1. Monitoring Location SPL-001

- a. Dischargers in the Tulare Lake Basin shall monitor the municipal water supply at Monitoring Location SPL-001 as follows. The Executive Officer may specify in the Notice of Applicability alternate sample types and/or monitoring frequency than that listed in Table E-7 below.

Table E-7. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type ³	Sampling Frequency ³	Required Analytical Test Method
Electrical Conductivity @ 25°C ¹	µmhos/cm	Grab ⁴	1/Year	2

- ¹ If the water supply is from more than one source electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.
- ² Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
- ³ Required sample type and frequency unless otherwise specified in the Notice of Applicability.
- ⁴ A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.

D. Filtration System

1. Monitoring Locations FIL-001 and FIL-002

- a. Each Discharger of tertiary treated wastewater that meets the eligibility criteria in section I.B.4 of this General Order shall monitor the filtration system at Monitoring Location FIL-002 according to Table E-8, unless otherwise specified in the Notice of Applicability by the Executive Officer. The City of Atwater and the City of Merced shall also monitor at Monitoring Location FIL-001 when not using coagulation. The City of Atwater and the City of Merced shall indicate in their monthly self-monitoring report which days coagulation was used.

Table E-8. Filtration System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Turbidity	NTU	Meter	Continuous ^{1,2}

¹ For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results. For Dischargers that utilize UV disinfection, the Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.

² Report daily average and maximum turbidity.

E. Ultraviolet Light (UV) Disinfection System

1. Monitoring Location UVS-001

- a. Each Discharger utilizing a UV disinfection system shall monitor the UV disinfection system at Monitoring Location UVS-001 as follows, unless otherwise specified in the Notice of Applicability by the Executive Officer:

Table E-9. UV Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	MGD	Meter	UVS-001 ⁵	Continuous ¹
Number of UV banks in operation ²	Number	Observation	N/A	Continuous ¹
UV Transmittance ³	Percent (%)	Meter	UVS-001	Continuous ¹
UV Dose ⁴	mJ/cm ²	Calculated	N/A	Continuous ¹

¹ For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results. The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.

² Report daily minimum and daily maximum number of UV banks in operation.

³ Report daily minimum hourly average UV transmittance and daily average transmittance. The minimum hourly average transmittance shall consist of lowest average transmittance recorded over an hour of a day when flow is being discharged. If the system does not operate for an entire hour interval on a given day or if effluent flow is not discharged for an entire hour, the transmittance will be averaged based on the actual operation time when discharges are occurring.

⁴ Report daily minimum hourly average UV dose and daily average UV dose. The minimum hourly average dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval or when effluent flow is not discharged for the entire hour, the dose will be averaged based on the actual operation time when discharges occurred.

⁵ If specified in the Notice of Applicability, flow monitoring at EFF-001 may be used to satisfy the UVS-001 flow monitoring requirement, provided flow was not diverted or added between UVS-001 and EFF-001.

F. Effluent and Receiving Water Characterization

The Discharger shall perform Effluent and Receiving Water Characterization as described in this section. If a Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, section VIII, the receiving water portion of this section is not required. However, the Discharger shall conduct, at minimum, one representative ambient

background characterization monitoring event for priority pollutant constituents² during the term of this General Order. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. The Discharger may request that the Regional Monitoring Program perform sampling and laboratory analysis to address all or a portion of the monitoring under this Characterization Monitoring with the understanding that the Discharger will provide funding to the Regional Monitoring Program sufficient to reimburse all of the costs of this additional effort. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Monitoring. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point.

1. **Monitoring Frequency.** Samples shall be collected from the effluent (Monitoring Location EFF-001) twice during the permit term, with all the sampling commencing not earlier than three years prior to, and concluding prior to six months before, the expiration of the this Order, and analyzed for the constituents listed in Table E-10, below. Samples shall be collected from the upstream receiving water (Monitoring Location RSW-001) once during the permit term, with all the sampling commencing not earlier than three years prior to, and concluding prior to six months before, the expiration of the this Order, and analyzed for the constituents listed in Table E-10, below. Delta Regional Monitoring Program participants may be relieved from characterization monitoring of the receiving water according to section VIII of the MRP and section VIII.D.1.b of the Fact Sheet. The Executive Officer may specify more frequent monitoring in the Notice of Applicability, including for those Dischargers requesting an exemption to the monitoring requirements for priority pollutants per Section 1.3, Step 8 of the SIP. The results of such monitoring shall be submitted to the Central Valley Water Board with the monthly SMR's. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.
2. **Concurrent Sampling.** Receiving water sampling shall be performed at approximately the same time and on the same date as one of the effluent sampling events.
3. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-10, below. A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.

Table E-10. Effluent and Receiving Water Characterization Monitoring

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
2- Chloroethyl vinyl ether	µg/L	Grab	1
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	0.5
Carbon Tetrachloride	µg/L	Grab	0.5
Chlorobenzene	µg/L	Grab	0.5
Chloroethane	µg/L	Grab	0.5
Chloroform	µg/L	Grab	2
Chloromethane	µg/L	Grab	2
Dibromochloromethane	µg/L	Grab	0.5

² Appendix A to 40 C.F.R. part 423.

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Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
Dichlorobromomethane	µg/L	Grab	0.5
Dichloromethane	µg/L	Grab	2
Ethylbenzene	µg/L	Grab	2
Hexachlorobenzene	µg/L	Grab	1
Hexachlorobutadiene	µg/L	Grab	1
Hexachloroethane	µg/L	Grab	1
Methyl bromide (Bromomethane)	µg/L	Grab	1
Naphthalene	µg/L	Grab	10
3-Methyl-4-Chlorophenol	µg/L	Grab	--
Tetrachloroethylene	µg/L	Grab	0.5
Toluene	µg/L	Grab	2
trans-1,2-Dichloroethylene	µg/L	Grab	1
Trichloroethene	µg/L	Grab	2
Vinyl chloride	µg/L	Grab	0.5
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	--
Trichlorofluoromethane ⁷	µg/L	Grab	--
1,1,1-Trichloroethane	µg/L	Grab	0.5
1,1,2-Trichloroethane	µg/L	Grab	0.5
1,1-dichloroethane	µg/L	Grab	0.5
1,1-dichloroethylene	µg/L	Grab	0.5
1,2-dichloropropane	µg/L	Grab	0.5
1,3-dichloropropylene	µg/L	Grab	0.5
1,1,2,2-tetrachloroethane	µg/L	Grab	0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane ⁷	µg/L	Grab	0.5
1,2,4-trichlorobenzene	µg/L	Grab	1
1,2-dichloroethane	µg/L	Grab	0.5
1,2-dichlorobenzene	µg/L	Grab	0.5
1,3-dichlorobenzene	µg/L	Grab	0.5
1,4-dichlorobenzene	µg/L	Grab	0.5
Styrene ⁷	µg/L	Grab	--
Xylenes ⁷	µg/L	Grab	--
1,2-Benzanthracene	µg/L	Grab	5
1,2-Diphenylhydrazine	µg/L	Grab	1
2-Chlorophenol	µg/L	Grab	5
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5
2,4,6-Trichlorophenol	µg/L	Grab	10
2,6-Dinitrotoluene	µg/L	Grab	5
2-Nitrophenol	µg/L	Grab	10
2-Chloronaphthalene	µg/L	Grab	10
3,3'-Dichlorobenzidine	µg/L	Grab	5
3,4-Benzofluoranthene	µg/L	Grab	10
4-Chloro-3-methylphenol	µg/L	Grab	5
4,6-Dinitro-2-methylphenol	µg/L	Grab	10
4-Nitrophenol	µg/L	Grab	10
4-Bromophenyl phenyl ether	µg/L	Grab	10
4-Chlorophenyl phenyl ether	µg/L	Grab	5
Acenaphthene	µg/L	Grab	1

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
Acenaphthylene	µg/L	Grab	10
Anthracene	µg/L	Grab	10
Benzidine	µg/L	Grab	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	Grab	2
Benzo(g,h,i)perylene	µg/L	Grab	5
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
Bis(2-ethylhexyl) phthalate ²	µg/L	Grab	5
Butyl benzyl phthalate	µg/L	Grab	10
Chrysene	µg/L	Grab	5
Di-n-butylphthalate	µg/L	Grab	10
Di-n-octylphthalate	µg/L	Grab	10
Dibenzo(a,h)-anthracene	µg/L	Grab	0.1
Diethyl phthalate	µg/L	Grab	10
Dimethyl phthalate	µg/L	Grab	10
Fluoranthene	µg/L	Grab	10
Fluorene	µg/L	Grab	10
Hexachlorocyclopentadiene	µg/L	Grab	5
Indeno(1,2,3-c,d)pyrene	µg/L	Grab	0.05
Isophorone	µg/L	Grab	1
N-Nitrosodiphenylamine	µg/L	Grab	1
N-Nitrosodimethylamine	µg/L	Grab	5
N-Nitrosodi-n-propylamine	µg/L	Grab	5
Nitrobenzene	µg/L	Grab	10
Pentachlorophenol	µg/L	Grab	1
Phenanthrene	µg/L	Grab	5
Phenol	µg/L	Grab	1
Pyrene	µg/L	Grab	10
Aluminum	µg/L	24-hr Composite ³	--
Antimony	µg/L	24-hr Composite ³	5
Arsenic	µg/L	24-hr Composite ³	10
Asbestos	MFL	24-hr Composite ³	--
Barium ⁷	µg/L	24-hr Composite ³	--
Beryllium	µg/L	24-hr Composite ³	2
Cadmium	µg/L	24-hr Composite ³	⁴
Chromium (Total)	µg/L	24-hr Composite ³	4
Chromium (VI)	µg/L	24-hr Composite ³	10
Copper	µg/L	24-hr Composite ³	⁴
Cyanide	µg/L	24-hr Composite ³	5
Fluoride ⁷	µg/L	24-hr Composite ³	--
Iron	µg/L	24-hr Composite ³	--
Lead	µg/L	24-hr Composite ³	⁴
Mercury	µg/L	24-hr Composite ³	0.5
Manganese	µg/L	24-hr Composite ³	--
Molybdenum ⁷	µg/L	24-hr Composite ³	--
Nickel	µg/L	24-hr Composite ³	⁴
Selenium	µg/L	24-hr Composite ³	5
Silver	µg/L	24-hr Composite ³	0.25

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Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
Thallium	µg/L	24-hr Composite ³	1
Tributyltin ⁷	µg/L	24-hr Composite ³	--
Zinc	µg/L	24-hr Composite ³	20
4,4'-DDD	µg/L	24-hr Composite ³	0.05
4,4'-DDE	µg/L	24-hr Composite ³	0.05
4,4'-DDT	µg/L	24-hr Composite ³	0.01
alpha-Endosulfan	µg/L	24-hr Composite ³	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite ³	0.01
Alachlor ⁷	µg/L	24-hr Composite ³	--
Aldrin	µg/L	24-hr Composite ³	0.005
beta-Endosulfan	µg/L	24-hr Composite ³	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite ³	0.005
Chlordane	µg/L	24-hr Composite ³	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite ³	0.005
Dieldrin	µg/L	24-hr Composite ³	0.01
Endosulfan sulfate	µg/L	24-hr Composite ³	0.01
Endrin	µg/L	24-hr Composite ³	0.01
Endrin Aldehyde	µg/L	24-hr Composite ³	0.01
Heptachlor	µg/L	24-hr Composite ³	0.01
Heptachlor Epoxide	µg/L	24-hr Composite ³	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite ³	0.5
PCB-1016	µg/L	24-hr Composite ³	0.5
PCB-1221	µg/L	24-hr Composite ³	0.5
PCB-1232	µg/L	24-hr Composite ³	0.5
PCB-1242	µg/L	24-hr Composite ³	0.5
PCB-1248	µg/L	24-hr Composite ³	0.5
PCB-1254	µg/L	24-hr Composite ³	0.5
PCB-1260	µg/L	24-hr Composite ³	0.5
Toxaphene	µg/L	24-hr Composite ³	--
Atrazine ⁷	µg/L	24-hr Composite ³	--
Bentazon ⁷	µg/L	24-hr Composite ³	--
Carbofuran ⁷	µg/L	24-hr Composite ³	--
2,4-D ⁷	µg/L	24-hr Composite ³	--
Dalapon ⁷	µg/L	24-hr Composite ³	--
1,2-Dibromo-3-chloropropane (DBCP) ⁷	µg/L	24-hr Composite ³	--
Di(2-ethylhexyl)adipate ⁷	µg/L	24-hr Composite ³	--
Dinoseb ⁷	µg/L	24-hr Composite ³	--
Diquat ⁷	µg/L	24-hr Composite ³	--
Endothal ⁷	µg/L	24-hr Composite ³	--
Ethylene Dibromide ⁷	µg/L	24-hr Composite ³	--
Methoxychlor ⁷	µg/L	24-hr Composite ³	--
Molinate (Ordram) ⁷	µg/L	24-hr Composite ³	--
Oxamyl ⁷	µg/L	24-hr Composite ³	--
Picloram ⁷	µg/L	24-hr Composite ³	--
Simazine (Princep) ⁷	µg/L	24-hr Composite ³	--
Thiobencarb ⁷	µg/L	24-hr Composite ³	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite ³	--
2,4,5-TP (Silvex) ⁷	µg/L	24-hr Composite ³	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
Diazinon ⁷	µg/L	24-hr Composite ³	--
Chlorpyrifos ⁷	µg/L	24-hr Composite ³	--
Ammonia (as N) ⁵	mg/L	24-hr Composite ³	--
Boron	µg/L	24-hr Composite ³	--
Chloride	mg/L	24-hr Composite ³	--
Flow ⁵	MGD	Meter	--
Hardness (as CaCO ₃) ⁵	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	24-hr Composite ³	--
Mercury, Methyl	ng/L	Grab	--
Nitrate (as N)	mg/L	24-hr Composite ³	--
Nitrite (as N)	mg/L	24-hr Composite ³	--
pH ⁵	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	24-hr Composite ³	--
Specific conductance ⁶	µmhos/cm	24-hr Composite ³	--
Sulfate	mg/L	24-hr Composite ³	--
Sulfide (as S)	mg/L	24-hr Composite ³	--
Sulfite (as SO ₃)	mg/L	24-hr Composite ³	--
Temperature ⁵	°C	Grab	--
Total Dissolved Solids (TDS) ⁵	mg/L	24-hr Composite ³	--

- ¹ The reporting levels required in this table for priority pollutant constituents are established based on section 2.4.2 and Appendix 4 of the SIP.
- ² In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
- ³ 24-hour flow proportional composite.
- ⁴ Applicable criteria and effluent limitations vary by hardness; therefore, the maximum reporting level will be specified in the Notice of Applicability.
- ⁵ The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.
- ⁶ Electrical conductivity.
- ⁷ Monitoring only required if the discharge is within the legal boundaries of the Sacramento-San Joaquin Delta, or as specified in the Notice of Applicability.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

- Dischargers shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
- Compliance Time Schedules.** For Dischargers subject to compliance time schedules in this General Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

3. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.
4. Monitoring frequencies may be adjusted by the Executive Officer to a less frequent basis if a Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.

B. Self-Monitoring Reports

1. Dischargers shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). The CIWQS Web site will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.
2. Dischargers shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit monthly SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-11. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Notice of Applicability effective date	All	Submit with monthly SMR
1/Day	Notice of Applicability effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Notice of Applicability effective date	Sunday through Saturday	Submit with monthly SMR
2/Week	Notice of Applicability effective date	Sunday through Saturday	Submit with monthly SMR
3/Week	Notice of Applicability effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Notice of Applicability effective date	1 st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Notice of Applicability effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
1/Year	Notice of Applicability effective date	1 January through 31 December	1 February of following year

4. **Reporting Protocols.** Dischargers shall report with each sample result the applicable RL and the current laboratory's Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136.

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

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
6. Dischargers shall submit SMRs in accordance with the following requirements:
- a. Each Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data are required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

- b. Each Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation. For Dischargers required to submit SMRs via CIWQS, (1) the cover letter must be uploaded directly into CIWQS and (2) violations must be entered into CIWQS under the Violations tab for the reporting period in which the violation occurred in addition to them being identified in the cover letter.
 - c. Each Discharger shall submit all laboratory analysis sheets, including quality assurance/quality control information, with all its SMR's for which sample analyses were performed.
7. The Discharger shall submit in the SMRs calculations and reports in accordance with the following requirements:
- a. **Calendar Annual Average Limitations.** For Dischargers subject to effluent limitations specified as "calendar annual average" (e.g., electrical conductivity), the Discharger shall report the calendar annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.
 - b. **Mass Loading Limitations.** For BOD₅, TSS, and ammonia, each Discharger shall calculate and report the mass loading (lbs/day) in the SMR's. The mass loading shall be calculated as follows:
$$\text{Mass Loading (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34$$

When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.
 - c. **Removal Efficiency (BOD₅ and TSS).** Each Discharger shall calculate and report the percent removal of BOD₅ and TSS in the SMR's. The percent removal shall be calculated as specified in section VIII.A of the Limitations and Discharge Requirements.
 - d. **Total Coliform Organisms Effluent Limitations.** Each Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in section VIII.E of the Limitations and Discharge Requirements.
 - e. **Total Calendar Annual Mass Loading Mercury Effluent Limitations.** Each Discharger subject to mass loading effluent limitations for total mercury in section V.A.1.c.xi or section V.A.2.b.iv shall calculate and report the total calendar annual mercury mass loading for the effluent in the December SMR. The total calendar year annual mass loading shall be calculated as specified in section VIII.C of the Limitations and Discharge Requirements.
 - f. **Temperature Effluent Limitation.** For every day receiving water temperature samples are collected at Monitoring Location RSW-001, each Discharger subject to effluent limitations for temperature at section V.A.1.c.xii shall calculate and report the difference between the effluent and upstream receiving water based on the difference in the daily average temperature at Monitoring Location EFF-001 and temperature of grab samples collected at Monitoring Location RSW-001.

- g. **Chlorpyrifos and Diazinon Effluent Limitations.** Each Discharger subject to effluent limitations for diazinon and chlorpyrifos in section V.A.1.c.ix of this General Order shall calculate and report the value of S_{AMEL} and S_{AWEL} for the effluent, using the equation in section V.A.1.c.ix and consistent with the Compliance Determination Language in section VIII.K of the Limitations and Discharge Requirements.
- h. **Dissolved Oxygen Receiving Water Limitations.** Major Dischargers shall report monthly and minor Dischargers shall report quarterly in the SMR the dissolved oxygen concentrations in the effluent (Monitoring Location EFF-001) and the receiving water (Monitoring Location RSW-001 and RSW-002).
- i. **Turbidity Receiving Water Limitations.** Each Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in section VI.A.18 of the Limitations and Discharge Requirements.
- j. **Temperature Receiving Water Limitations.** Where receiving water temperature limitations apply, each Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002, except as specified in section VI.A.16, for the City of Roseville (Pleasant Grove Wastewater Treatment Plant), the El Dorado Irrigation District (Deer Creek Wastewater Treatment Plant), the City of Placerville (Hangtown Creek Water Reclamation Facility), the City of Atwater (Regional Wastewater Treatment Facility), the City of Merced (Wastewater Treatment Facility), and the City of Lodi (White Slough Water Pollution Control Facility).

C. Discharge Monitoring Reports (DMR's)

1. Dischargers operating "major" facilities, as designated in the Notice of Applicability, shall electronically submit DMR's together with SMR's using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic submittal of DMR's will be in addition to electronic submittal of SMR's. Information about electronic submittal of DMR's is provided by the Discharge Monitoring Report website as follows:
(http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring/).
2. Dischargers operating "minor" facilities, as designated in the Notice of Applicability, are excepted from submitting DMR's under these requirements. However, at any time during the term of this permit, the State Water Board or Central Valley Water Board may notify such a discharger to electronically submit DMR's, at which time this exception will no longer apply.

D. Other Reports

1. **Special Study Reports and Progress Reports.** As specified in the Special Provisions contained in section VII of the Order, special study and progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date. Special Study Reports and Progress Reports reporting requirements will be specified by the Executive Officer in the Notice of Applicability.
2. Each Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan required by Special Provisions – VI.C. Each applicable Discharger shall report the progress in satisfaction of compliance schedule dates specified in Special Provisions – VII.C.7. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. Within 60 days of the issuance of the Notice of Applicability, each Discharger shall submit a report outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for the constituents listed in tables E-2, E-3, E-5, E-6, and E-7 that are required to be monitored by the discharge, as specified in the Notice of Applicability. In addition, no less than 6 months prior to conducting the effluent and receiving water characterization monitoring required in section IX.F, the Discharger shall submit a report outlining RL's, MDL's, and analytical methods for the constituents listed in Table E-10. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (ML's) contained in Appendix 4 of the SIP, determined in accordance with section 2.4.2 and section 2.4.3 of the SIP. In accordance with section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RL's, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table E-10 provides required maximum reporting levels in accordance with the SIP.
4. **Annual Operations Report.** By **1 February** of each year, the Discharger shall submit a written report containing the following:
 - a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
 - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
 - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
 - e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.
5. **Annual Pretreatment Reporting Requirements.** Dischargers subject to pretreatment program requirements, as specified in the Notice of Applicability, shall submit annually a report to the Central Valley Water Board, with copies to U.S. EPA Region 9 and the State Water Board (submittal requirements follow this section), describing the Discharger's pretreatment activities over the previous 12 months (1 January through 31 December). In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

If the Discharger has multiple wastewater treatment plants subject to annual pretreatment reporting requirements, the Discharger may combine annual pretreatment reporting requirements for their facilities. If the reports for multiple facilities are combined, then the Discharger shall note so in its transmittal letter accompanying the submission of the annual report.

An annual report shall be submitted by **28 February** and include the following items as specified by the Executive Officer in the Notice of Applicability:

- a. A summary of analytical results from representative sampling of the POTW's influent and effluent for those pollutants U.S. EPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by nondomestic users. This will consist of a full priority pollutant scan with a frequency as specified in the Notice of Applicability. The Discharger is not required to sample and analyze for asbestos. The Discharger shall submit the results of the priority pollutant scan electronically to the Central Valley Water Board using the State Water Board's CIWQS Program Website.

Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed as specified in the Notice of Applicability. The Discharger shall also provide any influent, effluent or sludge monitoring data for other constituents of concern which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 C.F.R. part 136 and amendments thereto.

- b. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by nondomestic users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.
- c. The cumulative number of nondomestic users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of nondomestic user responses.
- d. An updated list of the Discharger's significant industrial users (SIU's) including their names and addresses, or a list of deletions, additions and SIU name changes keyed to a previously submitted list. The Discharger shall provide a brief explanation for each change. The list shall identify the SIU's subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall indicate which SIU's, or specific pollutants from each industry, are subject to local limitations. Local limitations that are more stringent than the federal categorical standards shall also be identified.
- e. The Discharger shall characterize the compliance status through the year of record of each SIU by employing the following descriptions:
 - i. complied with baseline monitoring report requirements (where applicable);

- ii. consistently achieved compliance;
 - iii. inconsistently achieved compliance;
 - iv. significantly violated applicable pretreatment requirements as defined by 40 C.F.R. section 403.8(f)(2)(vii);
 - v. complied with schedule to achieve compliance (include the date final compliance is required);
 - vi. did not achieve compliance and not on a compliance schedule; and
 - vii. compliance status unknown.
- f. A report describing the compliance status of each SIU characterized by the descriptions in items iii through vii above shall be submitted for each calendar quarter by the first day of the second month following the end of the quarter. The report shall identify the specific compliance status of each such SIU and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report due every 28 February. This quarterly reporting requirement shall commence upon issuance of this Order.
- g. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the SIU's. The summary shall include:
- i. The names and addresses of the SIU's subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and
 - ii. The conclusions or results from the inspection or sampling of each industrial user.
- h. The Discharger shall characterize the compliance status of each SIU by providing a list or table which includes the following information:
- i. Name of SIU;
 - ii. Category, if subject to federal categorical standards;
 - iii. The type of wastewater treatment or control processes in place;
 - iv. The number of samples taken by the POTW during the year;
 - v. The number of samples taken by the SIU during the year;
 - vi. For an SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;
 - vii. A list of the standards violated during the year. Identify whether the violations were for categorical standards or local limits.
 - viii. Whether the facility is in significant noncompliance (SNC) as defined at 40 C.F.R. section 403.8(f)(2)(viii) at any time during the year; and
 - ix. A summary of enforcement or other actions taken during the year to return the SIU to compliance. Describe the type of action (e.g., warning letters or notices of violation, administrative orders, civil actions, and criminal actions), final

compliance date, and the amount of fines and penalties collected, if any.
Describe any proposed actions for bringing the SIU into compliance;

- x. Restriction of flow to the POTW.
- xi. Disconnection from discharge to the POTW.
- i. A brief description of any programs the POTW implements to reduce pollutants from nondomestic users that are not classified as SIU's;
- j. A brief description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning: the program's administrative structure, local limits, monitoring program or monitoring frequencies, legal authority, enforcement policy, funding levels, or staffing levels;
- k. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases; and
- l. A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 C.F.R. section 403.8(f)(2)(viii).
- m. Pretreatment Program reports shall be submitted as follows:
 - i. Electronically to the Central Valley Water Board using the CIWQS system or emailed as a PDF file to: RB5S-NPDES-Comments@waterboards.ca.gov; and
 - ii. Emailed to the State Water Board as a PDF file to: NPDES_Wastewater@waterboards.ca.gov; and
 - iii. Emailed to the U.S. EPA to: R9Pretreatment@epa.gov.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section III.C of this General Order, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this General Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

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

I. PERMIT INFORMATION

A. Background

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act) was amended to provide that the discharge of pollutants to waters of the United States from any point source is effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit.

On 22 September 1989, the United States Environmental Protection Agency (U.S. EPA) granted the State of California, through the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Regional Water Boards), the authority to issue general NPDES permits pursuant to 40 Code of Federal Regulations (C.F.R.) parts 122 and 123.

40 C.F.R. section 122.28 provides for issuance of general permits to regulate a category of point sources if the sources involve the same or substantially similar types of operations; discharge the same type of waste; require the same type of effluent limitations or operating conditions; require similar monitoring; and are more appropriately regulated under a general order rather than individual orders.

B. General Criteria

The General Order is designed to allow owners and operators (hereafter Dischargers) of municipal wastewater treatment facilities to discharge to surface waters of the United States as long as the discharge meets water quality objectives/criteria at the point of discharge. These facilities may be publicly owned treatment works (POTW's), as defined at 40 C.F.R. section 403.3, or privately owned treatment works, as defined at 40 C.F.R. section 122.2. This General Order covers major and minor discharges and does not specify eligibility criteria for flow.

II. DISCHARGE DESCRIPTION

A. Eligible Discharges

The municipal wastewater treatment facilities to be covered by this General Order receive and treat primarily municipal and domestic sewage (i.e., waste and wastewater from humans or household operations), but may also receive and treat septage, commercial and industrial wastewater, storm water, and dry-weather diversions from municipal separate storm sewer (MS4) systems. This General Order does not authorize discharges to surface waters directly from septic tanks or discharges that are comprised solely of non-municipal wastewater (e.g., commercial wastewater, industrial wastewater, or storm water).

This General Order covers municipal wastewater treatment facilities that provide secondary, advanced secondary, or tertiary treatment. Secondary treatment facilities are defined as those meeting the secondary treatment regulations at 40 C.F.R. part 133. Secondary treatment processes generally include a combination of physical and biological treatment to remove biodegradable organics and suspended solids. Advanced secondary facilities provide additional treatment beyond secondary (e.g., filtration). Tertiary facilities are defined as those providing filtration and disinfection equivalent to the levels required by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW) reclamation criteria at California Code of Regulations (CCR), Title 22, division 4, chapter 3, (Title 22). This General Order does not cover discharges that do not receive, at a minimum, secondary treatment (e.g., primary treatment, equivalent-to-secondary treatment).

This General Order covers municipal wastewater treatment facilities that provide disinfection using either chlorine or ultraviolet light (UV), but does not cover facilities that provide disinfection using alternative disinfection methods (e.g., ozonation or pasteurization).

B. Screening Levels

Attachment C contains screening levels based on water quality objectives/criteria. The most restrictive criteria are necessary because this Order is a general order covering discharges to all surface waters in the Central Valley of California. If municipal and domestic supply (MUN) is a beneficial use of the surface water, then the most restrictive human health-based criteria are used. If MUN is not a beneficial use, then the most restrictive human health-based criteria are not necessary. If the aquatic life criteria are more restrictive than the human health-based criteria, then the aquatic life criteria are used.

Upon receipt of a Notice of Intent for coverage under this General Order, the Central Valley Water Board will conduct a reasonable potential analysis (RPA) using the screening levels in Attachment C in accordance with the procedures detailed in section V.C.3 of this Fact Sheet. If the RPA indicates that the discharge has reasonable potential to cause or contribute to an exceedance of applicable water quality objectives/criteria for parameters for which effluent limitations are established in section V.A of this General Order, and the Discharger is capable of complying with the water quality objectives/criteria and associated effluent limitations at the point of discharge, without consideration of dilution credits (i.e., end-of-pipe), then the Discharger will be enrolled under this General Order and the Executive Officer shall indicate the applicable effluent limitations in the Notice of Applicability. A Discharger not currently meeting the water quality objectives/criteria and associated effluent limitations but in the process of implementing upgrades that will enable compliance under a compliance schedule in this General Order or a separate enforcement order (e.g., Time Schedule Order or Cease and Desist Order) may be enrolled under this General Order.

III. NOTIFICATION REQUIREMENTS

The Notice of Intent, as shown in Attachment B, is intended to provide the Central Valley Water Board with information necessary for a determination of suitability for coverage under this General Order. The information required to be completed in the Notice of Intent in Attachment B meets the requirements established at 40 C.F.R. section 122.28(b)(2) and satisfies the requirements for a report of waste discharge (ROWD) established by Water Code section 13260. Water Code section 13260 requires a ROWD to start the application process for all waste discharge requirements (WDR's) and NPDES permits, except for general WDR's or general NPDES permits that use the Notice of Intent to comply or specify the use of an alternative application form designed for the permit. Submittal of the Notice of Intent replaces the requirement of discharges to provide U.S. EPA Application Forms 1 and 2A. The requirement to provide a single application form represents a less burdensome procedure for applicants and the Central Valley Water Board, while requiring

submittal of all necessary information pursuant to NPDES regulations at 40 C.F.R. section 122.28(b)(2) and Water Code section 13260.

Dischargers seeking coverage under this General Order are required to submit a complete Notice of Intent, as detailed in Attachment B, which includes:

A. Requirements for All Dischargers

1. The appropriate first annual fee as required by Title 23 of the CCR, Division 3, Chapter 9, Article 1. The current fee schedule is available at the following website: <http://www.waterboards.ca.gov/resources/fees>. (Checks must be made payable to the State Water Resources Control Board.)
2. Discharger information listed in section 2 of Attachment B.
3. A facility description on official letterhead that includes the items listed in section 3 of Attachment B.
4. Pretreatment program information, if applicable.

B. Additional Requirements for Specific Dischargers

1. **Low Volume Dischargers.** Section 1.3, Step 8 of the SIP reads, in part, "*The RWQCB shall require periodic monitoring (at least once prior to the issuance and reissuance of a permit) for pollutants for which criteria or objectives apply and for which no effluent limitations have been established; however, the RWQCB may choose to exempt low volume discharges, determined to have no significant adverse impact on water quality, from this monitoring requirement.*" Section IX.F of the Monitoring and Reporting Program requires effluent for priority pollutants twice during the permit term and receiving water monitoring for priority pollutants once during the permit term. Low volume Dischargers may qualify for an exception to the sampling requirements for some or all of the priority pollutants, provided the Discharger can sufficiently justify that the discharge will have no significant adverse impact on water quality. Dischargers seeking an exception to the sampling requirements for priority pollutants must submit justification as part of the Notice of Intent. If the Central Valley Water Board finds that the justification is not sufficient to grant an exception to the sampling requirements, the Discharger will be required to analyze the discharge for all priority pollutants as part of the Effluent and Receiving Water Characterization Study required in section IX.F of the Monitoring and Reporting Program (Attachment E).
2. **Existing Dischargers.** Dischargers currently regulated under an existing individual NPDES permit ("existing Dischargers") may provide additional representative data for the effluent and/or receiving water that they wish to be considered that has not been reported in the California Integrated Water Quality System (CIWQS) during the last 3 years, if available. If an existing Discharger has completed a major upgrade to their existing facility for which representative data is not available from the upgraded facility or the upgrades have not been completed, the Discharger shall provide estimated data for the proposed effluent and receiving water and for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E). The Discharger will be required to sample the effluent and report the analytical results for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E) within 18 months for an upgraded facility that is fully operational at the time of the issuance of the Notice of Applicability or within 21 months following completion of construction of the upgrades to the existing facility.

3. **New Dischargers.** New Dischargers shall provide either analytical results (if the proposed new discharge is from an operational facility) or estimated data (if the proposed new discharge is from a new facility for which construction and startup has not been completed) for the proposed effluent and receiving water for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E). If estimated data are provided, the Discharger will be required to sample the effluent and report the analytical results for the priority pollutants and other constituents of concern listed in section IX.F of the Monitoring and Reporting Program (Attachment E) within 18 months for a new facility that is fully operational at the time of the issuance of the Notice of Applicability or within 21 months following completion of construction of a new facility that is not fully operational at the time of the issuance of the Notice of Applicability.
4. **New or Increased Discharge.** Dischargers requesting a new discharge or expanding facility capacity beyond their current permitted average dry weather flow shall provide an antidegradation analysis and a feasibility analysis for wastewater disposal, regionalization, and recycled water alternatives.

The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California"). Resolution No. 68-16 requires that existing water quality be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses, and will not result in water quality less than that prescribed in State policies. Additionally, Resolution No. 68-16 requires that any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters be required to meet WDR's that result in the best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained. The antidegradation analysis shall be developed in accordance with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16 and guidance in Administrative Procedures Update (APU) No. 90-004, *Antidegradation Policy Implementation for NPDES Permitting*.

Pursuant to section 2, Article X, California Constitution, and Water Code section 275, on preventing waste and unreasonable use of waters of the state, the Central Valley Water Board encourages, wherever practicable, water conservation and/or re-use of wastewater. Therefore, to obtain coverage under this General Order, Dischargers are required to evaluate their wastewater disposal, regionalization, and recycled water alternatives.

5. **UV Disinfection Dischargers.** Dischargers that use UV disinfection shall provide a copy of the site-specific engineering study and DDW approval letter if requesting site-specific UV disinfection system operating specifications in lieu of the specification in Special Provisions VII.C.4.b.i and ii. Dischargers that use UV disinfection shall also provide a description of chlorine use and demonstration that chlorine use is managed properly if chlorine is used within the treatment system for cleaning and/or maintenance purposes.

IV. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from municipal wastewater treatment facilities that meet water quality objectives/criteria at the point of discharge, as described herein, to surface waters.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code.

C. State and Federal Laws, Regulations, Policies, and Plans

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

- a. **Basin Plans.** The Central Valley Water Board adopted a Water Quality Control Plan, Fourth Edition (Revised July 2016 with approved amendments), for the Sacramento and San Joaquin River Basins and a Water Quality Control Plan, Second Edition (Revised July 2016 with approved amendments), for the Tulare Lake Basin (hereinafter Basin Plans) that designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters addressed through the plans. Requirements in this Order implement the Basin Plans. The Basin Plans identify the typical beneficial uses as follows: municipal and domestic supply; agricultural irrigation; stock watering; process supply; service supply; hydropower supply; water contact recreation; canoeing and rafting recreation; other non-contact water recreation; warm freshwater aquatic habitat; cold freshwater habitat; warm fish migration habitat; cold fish migration habitat; warm and cold spawning habitat; wildlife habitat; navigation; rare, threatened, or endangered species habitat; groundwater recharge; and freshwater replenishment. The Notice of Applicability from the Executive Officer shall specify the specific beneficial uses applicable to the receiving water.

The Basin Plans implement State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. On 16 April 2015, the Central Valley Water Board adopted Resolution No. R5-2015-0022, *Amendment to the Water Quality Control Plan for the Sacramento and San Joaquin River Basins to Remove the Municipal and Domestic Supply (MUN) Beneficial Use in Twelve Constructed and/or Modified Water Bodies in the Sacramento River Basin that Receive Treated Municipal Wastewater from the Cities of Biggs, Colusa, Live Oak, or Willows*, which became effective on 21 April 2016. Per Resolution No. R5-2015-0022, the Basin Plan was amended to provide an exception to State Water Board Resolution 88-63 for the water bodies listed in Table F-1.

Table F-1. Water Bodies That Meet Drinking Water Policy (Resolution 88-63) Exceptions

County	Water Body Name	Description	Approximate GIS Coordinates (WGS84 Datum)	
			Starting Location	Ending Location
Butte	Cherokee Canal	Cherokee Canal runs southwest from the Richvale area (near Nelson Shippee Road) to Butte Creek, west of the City of Live Oak.	(39.537741, -121.707079)	(39.285685, -121.921656)
Butte	Lateral K	Lateral K is part of Reclamation District 833 and starts near 8th Street in the City of Biggs and travels southwest past the City of Biggs Wastewater Treatment Plant to the Main Drainage Canal.	(39.421894, -121.71297)	(39.406837, -121.725361)
Butte	Main Drainage Canal	The Main Drainage Canal (also known as the Main Drain C) is part of Reclamation District 833 and starts on the south end of the City of Biggs near Trent Street and runs southwest to the Cherokee Canal.	(39.41041, -121.704258)	39.327924, -121.882067
Colusa	New Ditch (2011)	New Ditch (2011) starts near the south end of the Colusa Wastewater Treatment Plant and runs south, parallel to the unnamed tributary, until the two water bodies join near the effluent outfall and weir.	(39.180224, -122.031358)	(39.174267, -122.031274)
Colusa	Powell Slough	Powell Slough begins just north of Highway 20, downstream of Hopkins Slough, and runs south until its confluence with the Colusa Basin Drain.	(39.211133, -122.062955)	(39.161267, -122.038445)
Colusa	Sulphur Creek	Lower two miles from Schoolhouse Canyon to its confluence with Little Bear Creek.	(39.035631, -122.437619)	(39.040144, -122.408168)
Colusa	unnamed tributary (to Powell Slough)	Unnamed tributary to Powell Slough starts near Will S. Green Avenue and runs west and southwest to Powell Slough .	(39.188028, -122.02328)	(39.166857, -122.034722)
Glenn	Ag Drain C	Glenn-Colusa Irrigation District's Ag Drain C (segments also known as North Fork Logan Creek and Logan Creek) runs southeast from Highway 5 near Highway 99W through the Sacramento Wildlife Refuge to the Colusa Basin Drain .	(39.498519, -122.199216)	(39.356401, -122.082675)
Sutter	East Interceptor Canal	The East Interceptor Canal starts at Pease Road and runs west until it meets the Wadsworth Canal.	(39.170745, -121.670588)	(39.171003, -121.727014)
Sutter	Lateral 1	Lateral 1 is part of Reclamation District 777 and starts near the City of Live Oak's Wastewater Treatment Plant and runs south and west to the Western Intercepting Canal.	(39.257501, -121.678718)	(39.201348, -121.696329)
Sutter	Lateral 2	Lateral 2 is part of Reclamation District 777. It starts on the south end of the City of Live Oak near Treatment Plant Access Road and runs south and then west past the City of Live Oak's Treatment Plant outfall until it meets Lateral 1.	(39.264739, -121.669314)	(39.257501, -121.678718)

County	Water Body Name	Description	Approximate GIS Coordinates (WGS84 Datum)	
			Starting Location	Ending Location
Sutter	Western Intercepting Canal <i>(not to be confused with West Interceptor Canal)</i>	Western Interceptor Canal is under shared management between Reclamation District 777 and Reclamation District 2056. It starts south of Sanders Road and runs south until it meets the East Interceptor Canal.	(39.201248, -121.696329)	(39.17092, -121.695374)
Sutter	Wadsworth Canal	The Wadsworth Canal starts just north of Butte House Road and runs southwest until it meets the Sutter Bypass.	(39.171003, -121.727014)	(39.113605, -121.768985)

On 6 June 2014, the Central Valley Water Board adopted Resolution No. R5-2014-0074, *Amendments to the Water Quality Control Plan for the Sacramento and San Joaquin River Basins and the Water Quality Control Plan for the Tulare Lake Basin to Add Policies for Variances from Surface Water Quality Standards for Point Source Dischargers, Variance Program for Salinity, and Exception from Implementation of Water Quality Objectives for Salinity*, which became effective under the Clean Water Act on 8 July 2016 upon approval by U.S. EPA.

- b. **Bay-Delta Plan.** The current *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in December 2006 by the State Water Board, amending and superseding the 1995 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection. On 1 June 2011, the Superior Court for Sacramento County entered a judgment and peremptory writ of mandate in the matter of City of Tracy v. State Water Resources Control Board (Case No; 34-2009-8000-392-CUWM-GDS), ruling that the South Delta salinity objectives shall not apply to the City of Tracy and other municipal dischargers in the South Delta area pending reconsideration of the South Delta salinity objectives under Water Code §13241 and adoption of a proper program of implementation under Water Code §13242 that includes municipal dischargers. The State Water Board is currently considering new salinity and flow objectives in the South Delta that will address the court order. Therefore, at the time this Order was adopted the South Delta salinity objectives were not applicable to the Discharger.

The State Water Board adopted Decision 1641 (D-1641) on 29 December 1999, and revised on 15 March 2000. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of diversion of the Central Valley Project and the State Water Project in the Southern Delta, and approves a petition to change places of use and purposes of use of the Central Valley Project. The requirements within this Order are consistent with the Bay-Delta Plan.

- c. **Thermal Plan.** The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) on 7 January 1971, and amended this plan on 18 September 1975. This plan contains temperature objectives for surface waters. The Thermal Plan is applicable to the discharges from municipal wastewater treatment facilities in the Sacramento-San Joaquin Delta. For the purposes of the Thermal Plan, these discharges are considered to be an Existing Discharge of Elevated Temperature Waste to an Estuary, as defined in the Thermal Plan.

Therefore, Dischargers in the Sacramento-San Joaquin Delta must meet the water quality objective at Section 5.A(1) of the Thermal Plan, which requires compliance with the following:

- i. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.
- ii. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.
- iii. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.
- iv. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

Requirements of this Order implement the Thermal Plan.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.
3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plans. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California"). Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plans implement, and incorporate by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.
5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as

stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
8. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code, requires that “the Regional Water Board shall prescribe effluent limitations as part of the WDR’s of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”.

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

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

9. **Storm Water Requirements.** U.S. EPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The State Water Board does not require wastewater treatment facilities with design flows less than 1 MGD to obtain coverage under the Water Quality Order 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial Storm Water General Permit). The Industrial Storm Water General Permit also does not require facilities to obtain coverage if discharges of storm water are regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board (Finding I.B.20). This General Order does not regulate storm water.

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

1. Under section 303(d) of the CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 26 June 2015, U.S. EPA gave final approval to California's 2012 section 303(d) List of Water Quality Limited Segments. The Basin Plans reference this list of Water Quality Limited Segments (WQLS's), which are defined as "...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate effluent limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan for the Sacramento and San Joaquin River Basins states, "Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." The Basin Plan for the Tulare Lake Basin states, "Additional treatment beyond minimum federal requirements will be imposed on dischargers to [WQLSs]. Point source dischargers will be assigned or allocated a maximum allowable load of critical pollutants." Impaired waters do not fully support beneficial uses.

Many water bodies in the Central Valley Region are listed on the 303(d) list as impaired for mercury. The Central Valley Water Board is in the process of developing TMDL's for these water bodies. In order to limit mercury loads to current levels until TMDL's can be established, this General Order requires effluent performance-based effluent limitations for Dischargers proposing to discharge to water bodies that are impaired for mercury. If the Central Valley Water Board plans to adopt a TMDL after the year 2022, this Order includes a final effluent limitation for total mercury. If the Central Valley Water Board plans to adopt a TMDL before the year 2022 (i.e., within the term of this General Order), this General Order includes an interim effluent limitation for total mercury effective until this General Order is amended to implement a wasteload allocation (WLA) adopted as part of a TMDL for mercury.

2. **Total Maximum Daily Loads (TMDL's).** U.S. EPA requires the Central Valley Water Board to develop TMDL's for each 303(d) listed pollutant and water body combination. The Central Valley Water Board has adopted several TMDL's for water bodies in the Central Valley Region. Of these, the Central Valley Water Board finds that the following TMDL's are applicable to Dischargers to be covered by this General Order:
 - a. **Sacramento-San Joaquin Delta Methylmercury TMDL.** This TMDL is applicable to Dischargers within the legal boundaries of the Sacramento-San Joaquin Delta (see Appendix 43 of the Basin Plan for the Sacramento and San Joaquin River Basins for a list of Delta waterways subject to the TMDL). The TMDL establishes WLA's for methylmercury for point source discharges in Table IV-7B of the Basin Plan for the Sacramento and San Joaquin River Basins.
 - b. **Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL.** This TMDL is applicable to Dischargers within the legal boundaries of the Sacramento-San Joaquin Delta (see Appendix 42 of the Basin Plan for the Sacramento and San Joaquin River Basins for a list of Delta waterways subject to the TMDL). The TMDL establishes WLA's for diazinon and chlorpyrifos at page IV-36.03.01 of the Basin Plan for the Sacramento and San Joaquin River Basins.
 - c. **Sacramento and Feather Rivers Diazinon and Chlorpyrifos TMDL.** This TMDL is applicable to Dischargers to the Sacramento River and Feather River. The TMDL

establishes WLA's for diazinon and chlorpyrifos at pages IV-36.00 and IV-37.01 of the Basin Plan for the Sacramento and San Joaquin River Basins.

- d. **San Joaquin River Basin Diazinon and Chlorpyrifos TMDL.** This TMDL is applicable to Dischargers to the San Joaquin River and its tributaries downstream of the major dams and reservoirs. The TMDL establishes WLA's for diazinon and chlorpyrifos at pages IV-36.02 and IV-36.03 of the Basin Plan for the Sacramento and San Joaquin River Basins.
3. The 303(d) listings and TMDL's have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in V.C.3 of this Fact Sheet.

E. Other Plans, Policies and Regulations

1. **Title 27.** The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:
 - a. The waste consists primarily of domestic sewage and treated effluent;
 - b. The WDR's are consistent with water quality objectives; and
 - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

V. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.*" Federal regulations, 40 C.F.R. section 122.44(d)(1)(vi), further provide that "[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limitations (WQBEL's) to attain and maintain applicable numeric and

narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan for the Sacramento and San Joaquin River Basins at page IV-17.00 and the Basin Plan for the Tulare Lake Basin at page IV-21, contain implementation policies, "Policy for Application of Water Quality Objectives" and "Application of Water Quality Objectives", respectively, that specify that the Central Valley Water Board "will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives." This Policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) U.S. EPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "Policy for Application of Water Quality Objectives") (40 C.F.R. § 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plans include numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." The Basin Plans state that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)" in Title 22 of CCR. The Basin Plans further state that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCL's. The narrative tastes and odors objective states: "Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."

A. Discharge Prohibitions

- 1. Prohibition III.A (No discharge or application of waste other than that described in this General Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before waste discharges can occur, except for general WDR's or general NPDES permits that use the Notice of Intent to comply or specify the use of an alternative application form designed for the permit. Dischargers seeking authorization to discharge under this General Order are required to submit a Notice of Intent for the waste discharges described in this General Order; therefore, discharge of wastes, other than those described in section I.A and meeting the eligibility criteria in section I.B of this General Order are prohibited.
- 2. Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at 40 C.F.R. section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Central Valley Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plans prohibit conditions that create a nuisance.
4. **Prohibition III.D (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on 40 C.F.R. section 122.41 that requires the proper design and operation of treatment facilities.
5. **Site-Specific Prohibitions.** The Discharger shall comply with any additional site-specific prohibitions specified in the Notice of Applicability.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. Discharges from POTW's authorized by this General Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. part 133. Discharges from privately-owned treatment works must meet minimum federal technology-based requirements based on best professional judgement (BPJ) in accordance with 40 C.F.R. section 125.3.

a. POTW's

Regulations promulgated in 40 C.F.R. section 125.3(a)(1) require technology-based effluent limitations for POTW's to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

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

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all POTW's and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH.

b. Privately-Owned Treatment Works

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- i. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- ii. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

- iii. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.
- iv. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELG's) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 C.F.R. section 125.3 authorize the use of BPJ to derive technology-based effluent limitations on a case-by-case basis where ELG's are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the Central Valley Water Board must consider specific factors outlined in 40 C.F.R. section 125.3.

ELG's are not available for privately-owned treatment works, and the secondary treatment standards at 40 C.F.R. part 133 are not directly applicable to privately-owned treatment works. Therefore, this Order includes technology-based effluent limitations for privately-owned treatment works for BOD₅, TSS, and pH equivalent to the secondary treatment standards based on BPJ pursuant to 40 C.F.R. section 125.3, which meet the requirements for BPT and BCT. In establishing these limitations, the Central Valley Water Board considered the factors specified in 40 C.F.R. section 125.3(d). Coverage under this General Order is limited to municipal wastewater treatment facilities that receive and treat primarily municipal and domestic sewage (i.e., waste and wastewater from humans or household operations). The privately-owned treatment works that may be covered under this General Order treat wastewater similar in nature to that treated by POTW's and employ similar treatment systems. Existing control equipment and facilities are practicable and capable of meeting these limitations. The cost of complying with these limitations is reasonable given that privately-owned treatment works enrolled under this General Order are expected to be able to comply without modifying their existing operations. No process changes will be necessary; therefore, no non-water quality impacts are foreseeable. The limitations are similar to those for secondary treatment of municipal wastewater; therefore, the cost is comparable to those for a comparable POTW.

2. **Applicable Technology-Based Effluent Limitations**

- a. **BOD₅ and TSS.** Federal regulations at 40 C.F.R. part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment at 30 mg/L and 45 mg/L, respectively, for BOD₅ and TSS. This Order includes an average monthly effluent limitation (AMEL) of 30 mg/L and average weekly effluent limitation (AWEL) of 45 mg/L based on the secondary treatment standards for Dischargers of secondary treated wastewater that meet the eligibility criteria in section I.B.3 of this General Order. A maximum daily effluent limitation (MDEL) of 60 mg/L for BOD₅ and TSS is also included in the Order to ensure that

the treatment works are not organically overloaded and operate in accordance with design capabilities.

As discussed in section V.C.3.b.x(b) of this Fact Sheet, this Order requires WQBEL's for BOD₅ and TSS that are more stringent than the secondary treatment standards for Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order.

In addition to the concentration-based effluent limitations described above, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD₅ and TSS over each calendar month, which is applicable to all Dischargers.

- b. **Flow.** Effluent limitations for flow are necessary to ensure that all flows receive adequate treatment in accordance with the design specifications of the wastewater treatment system. Therefore, this Order contains an average dry weather discharge flow effluent limitation, which shall be based on the design average dry weather treatment capacity of the facility and specified in the Notice of Intent.
- c. **pH.** The secondary treatment regulations at 40 C.F.R. part 133 require that pH be maintained between 6.0 and 9.0 standard units. This Order, however, requires more stringent WQBEL's for pH to comply with the Basin Plans' water quality objectives for pH.

Table F-2. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	¹	--	--	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C) ²	mg/L	30	45	60	--	--
	lbs/day	³	³	³	--	--
	% Removal	85	--	--	--	--
pH ⁴	standard units	--	--	--	6.0	9.0
Total Suspended Solids ²	mg/L	30	45	60	--	--
	lbs/day	³	³	³	--	--
	% Removal	85	--	--	--	--

¹ The average dry weather discharge flow shall not exceed the limitations specified in the Notice of Applicability. Effluent average dry weather flow limitations specified in the Notice of Applicability shall not exceed the permitted average dry weather flow rates in a Discharger's existing individual NPDES permit without approval of an antidegradation analysis.

² Note that more stringent WQBEL's for BOD₅ and TSS are applicable to Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order.

³ Mass-based effluent limitations shall be established in the Notice of Applicability based on the design average dry weather flow.

⁴ Note that more stringent WQBEL's for pH are applicable and are established as final effluent limitations in this Order (see section V.C.3.b.xi of this Fact Sheet).

C. Water Quality-Based Effluent Limitations (WQBEL's)

1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards for Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in section V.C.3.b.x(b) of this Fact Sheet.

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plans designate beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plans. In addition, the Basin Plans implement State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (see discussion at section IV.C.1.a of this Fact Sheet).

The Basin Plan for the Sacramento and San Joaquin River Basins on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*" and with respect to disposal of wastewaters states that "*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*" The Basin Plan for the Tulare Lake Basin on page II-1 states: "*Protection and enhancement of beneficial uses of water against quality degradation is a basic requirement of water quality planning under the Porter-Cologne Water Quality Control Act. In setting water quality objectives, the Regional Water Board must consider past, present, and probable future beneficial uses of water.*" and with respect to disposal of wastewaters states that "*...use of waters for disposal of wastewaters is not included as a beneficial use...and are subject to regulation as activities that may harm protected uses.*"

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be*

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

- a. **Receiving Water and Beneficial Uses.** The discharges described in this General Order may potentially discharge to any surface waters in the Central Valley. Refer to IV.C.1.a above for a complete description of the receiving water beneficial uses. This Order contains both effluent limitations based on the MUN use and effluent limitations when the MUN use does not apply.
- b. **Effluent and Ambient Background Data.** Upon receipt of a Notice of Intent for coverage under this General Order, the Central Valley Water Board will conduct an RPA for the discharge based on “*all available, valid, relevant, representative data and information, as determined by the Central Valley Water Board*” in accordance with section 1.2 of the SIP. Based on the results of the RPA, the Notice of Applicability will specify the effluent limitations applicable to a specific Discharger. In selecting the effluent and ambient background data to be used for the RPA for a specific Discharger, the Central Valley Water Board will consider the following:
 - i. **Sources and Age of Data.** For Dischargers currently regulated under an existing individual NPDES permit, the Central Valley Water Board will conduct the RPA using effluent and receiving water monitoring data obtained from the California Integrated Water Quality System (CIWQS) and submitted in accordance with section 6 of the Notice of Intent (Attachment B). The Central Valley Water Board will use effluent and receiving water monitoring data collected within 3 years of the date of the Notice of Intent, except where a major facility upgrade was completed within the last 3 years and effluent monitoring data collected prior to the upgrade is not representative of effluent water quality or where no monitoring data for a parameter was collected during the last 3 years.

For new Dischargers, the RPA will be based on either actual or estimated effluent data and receiving water sampling submitted in section 7 of the Notice of Intent (Attachment B). If the proposed new discharge is from an operational facility (e.g., a facility that currently discharges to land) and it is feasible to collect a representative sample of the proposed effluent, section 7 of the Notice of Intent requires the Discharger to collect a sample of the proposed effluent and analyze it for priority pollutants and other constituents of concern. If the proposed new discharge is from a new facility for which construction and startup has not been completed, or a representative sample of the proposed discharge cannot otherwise be collected, section 7 of the Notice of Intent requires the Discharger to provide an engineering report estimating the character of the effluent for priority pollutants and other constituents of concern. In such cases, the Notice of Applicability will require effluent sampling to be conducted within 18 months for a new facility that is fully operational at the time of the issuance of the Notice of Applicability, or within 21 months following completion of construction of a new

facility that is not fully operational at the time of the issuance of the Notice of Applicability.

- ii. **Inappropriate or Insufficient Data.** Section 1.2 of the SIP states, “*The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy. Instances where such consideration is warranted include, but are not limited to, the following: evidence that a sample has been erroneously reported or is not representative of effluent or ambient receiving water quality; questionable quality control/quality assurance practices; and varying seasonal conditions.*” Consistent with section 1.2 of the SIP, the Central Valley Water Board will not use data that are inappropriate or insufficient for purposes of the RPA, including where sample contamination or other issues are documented in a laboratory report or where documentation is available indicating that samples were collected under conditions that are not characteristic of the discharge.
- iii. **Estimated Data.** Based on the following considerations, the Central Valley Water Board will not use estimated (i.e., j-flagged or detected but not quantified (DNQ)) data.

SIP Section 2.4.2 states that the Minimum Level (ML) is the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.

- (a) Required ML’s are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the Reporting Level (RL).
- (b) An RL can be lower than the ML in Appendix 4 only when the discharger agrees to use a RL that is lower than the ML listed in Appendix 4. In general, the Central Valley Water Board does not have any agreements with any Dischargers potentially eligible for coverage under this General Order to use a RL lower than the listed ML.
- (c) SIP Section 1.2 requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. SIP Section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.
- (d) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.
- (e) Further, SIP Section 2.4.5 (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part it states, “*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.*” Thus, if submitted data are below the RL, that data cannot be used to determine compliance with effluent limitations.
- (f) Data reported below the ML are not considered valid data for use in determining Reasonable Potential. Therefore, in accordance with Section 1.2 of the SIP, the Central Valley Water Board has determined that data reported

below the ML are inappropriate and insufficient to be used to determine reasonable potential.

- (g) In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the invalid data. Therefore, the Central Valley Water Board will require additional monitoring for such constituents until such time a determination can be made in accordance with the SIP policy.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring may be established in the Notice of Applicability if determined necessary by the Central Valley Water Board. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, the Notice of Intent may be modified by adding an appropriate effluent limitation.

- c. **Assimilative Capacity/Mixing Zone.** The effluent limitations for discharges covered by this General Order are calculated assuming no dilution. Because this General Order is intended to serve as a general order and covers discharges to all surface waters in the Central Valley, the effluent limitations established pursuant to this General Order are established to achieve the most protective water quality objective for the surface water beneficial uses in the Central Valley. Therefore, it is assumed there is no assimilative capacity and no dilution credits have been granted.

An exception to this assumption may be applied based on the demonstration of a mixing zone in accordance with section 1.4.2 of the SIP and an approved mixing zone study demonstrating compliance with water quality objectives in the receiving water as prescribed in the Basin Plans. This exception process is more appropriate for an individual order, and would not be appropriate for a general order that should be protective of most stringent water quality objectives and beneficial uses. If a Discharger requests that a dilution credit be included in the computation of an effluent limitation or that a mixing zone be allowed, an individual order will be required. However, if no mixing zone is proposed, the discharge may be eligible for coverage under this General Order.

- d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. U.S. EPA recommends conversion factors (also referred to as translators) to translate dissolved concentrations to total concentrations. The default U.S. EPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria, except for copper and zinc for the City of Grass Valley, Wastewater Treatment Plant.

In the individual NPDES permit for the City of Grass Valley, Wastewater Treatment Plant (Order R5-2016-0012, NPDES No. CA0079898), the Central Valley Water Board approved the use site-specific translators for copper and zinc based on the February 2008 *Development and Selection of Translators for Copper, Lead, and Zinc in Wolf Creek* and September 2008 Infeasibility Report. Consistent with the individual NPDES permit, this General Order allows for the acute and chronic CTR criteria and associated effluent limitations (if necessary) for copper and zinc to be calculated with the following translators for the City of Grass Valley, Wastewater Treatment Plant:

Table F-3. Metal Translators for City of Grass Valley, Wastewater Treatment Plant

Parameter	Translator (1/fD)	
	Acute	Chronic
Copper	1.05	1.19
Zinc	1.03	1.19

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

When issuing Notices of Applicability, the Central Valley Water Board will determine criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP¹ and the CTR². The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones³.

For non-effluent dominated water bodies, design flows for aquatic life criteria include the lowest 1-day flow with an average reoccurrence frequency of once in 10 years (1Q10) and the lowest average 7 consecutive day flow with an average reoccurrence frequency of once in 10 years (7Q10).⁴ For ephemeral water bodies, the receiving water is effluent dominated at design discharge conditions. Under these regularly occurring critical conditions, the effluent is the receiving water that is used to define the ambient receiving water conditions to define the appropriate water quality criteria in accordance with the CTR and SIP.

The CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a 3 year period on average.⁵ The CTR requires that when mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria apply throughout the water body including at the point of discharge.⁶ The CTR does not define the term “ambient,” as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

Summary Findings

Given the high variability in ambient hardness values, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum). Because of this variability, staff has determined that the Central Valley Water Board has discretion to select ambient hardness values within

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

² The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO₃), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. § 131.38(c)(4)).

³ 40 C.F.R. §131.38(c)(4)(ii)

⁴ 40 C.F.R. §131.38(c)(2)(iii) Table 4

⁵ 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

⁶ 40 C.F.R. §131.38(c)(2)(i)

the range of the minimum and maximum receiving water hardness. When issuing Notices of Applicability, the Central Valley Water Board will use the ambient hardness values within this range for the following reasons:

- i. Using the ambient receiving water hardness values will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
- ii. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. Using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP, and is not reasonable as it would result in overly conservative limits that will impart substantial costs to Dischargers and ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff will use ambient hardness values to calculate effluent limitations for hardness-dependent metals that are protective of beneficial uses under all flow conditions.
- iii. Using an ambient hardness that is higher than the minimum observed ambient hardness will result in limits that may allow increased metals to be discharged to the receiving water, but such discharge is allowed under the antidegradation policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in Section V.D.4 of the Fact Sheet). The antidegradation policy requires Dischargers to meet WDR's which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

Background

The State Water Board provided direction regarding the selection of hardness in two precedential water quality orders: WQO 2008-0008 for the City of Davis Wastewater Treatment Plant (Davis Order) and WQO 2004-0013 for the Yuba City Wastewater Treatment Plant (Yuba City Order). The State Water Board recognized that the SIP and the CTR do not discuss the manner in which hardness is to be ascertained, thus regional water boards have considerable discretion in determining ambient hardness so long as the selected value is protective of water quality criteria under the given flow conditions. (Davis Order, p.10). The State Water Board explained that it is necessary that, "*The [hardness] value selected should provide protection for all times of discharge under varying hardness conditions.*" (Yuba City Order, p. 8). The Davis Order also provides that, "*Regardless of the hardness used, the resulting limits must always be protective of water quality criteria under all flow conditions.*" (Davis Order, p. 11)

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

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

Where:

H = ambient hardness (as CaCO₃)¹

WER = water-effect ratio

m, b = metal- and criterion-specific constants

The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected “design” hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a 3 year period.² Where design flows for aquatic life criteria include the lowest 1-day flow with an average reoccurrence frequency of once in 10 years (1Q10) and the lowest average 7 consecutive day flow with an average reoccurrence frequency of once in 10 years (7Q10). Since effluent dominated water bodies regularly contain no upstream flow, the critical design flow for effluent dominated water bodies is zero.

Ambient Conditions

The Central Valley Water Board will consider the entire range of ambient hardness concentrations to determine the appropriate ambient hardness to calculate the CTR criteria and effluent limitations that are protective under all discharge conditions.

Approach to Derivation of Criteria

Ambient hardness is variable. Because of this variation, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum, mid-point). While the hardness selected must be hardness of the ambient receiving water, selection of an ambient receiving water hardness that is too high would result in effluent limitations that do not protect beneficial uses. Also, the use of minimum ambient hardness would result in criteria that are protective of beneficial uses, but such criteria may not be representative considering the wide range of ambient conditions.

Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, the Central Valley Water Board will conduct an analysis considering varying ambient hardness and flow conditions. To do this, the Central Valley Water Board will ensure that the receiving water hardness and criteria selected for effluent limitations are protective under “reasonable-worst case ambient conditions.” These conditions represent the receiving water conditions under which derived effluent limitations would ensure protection of beneficial uses under all ambient flow and hardness conditions.

Reasonable worst-case ambient conditions:

- “Low receiving water flow.” CTR design discharge conditions (1Q10 and 7Q10) will be selected to represent reasonable worst case receiving water flow conditions for non-effluent dominated water bodies. For effluent-dominated water bodies, the critical design flow is zero.

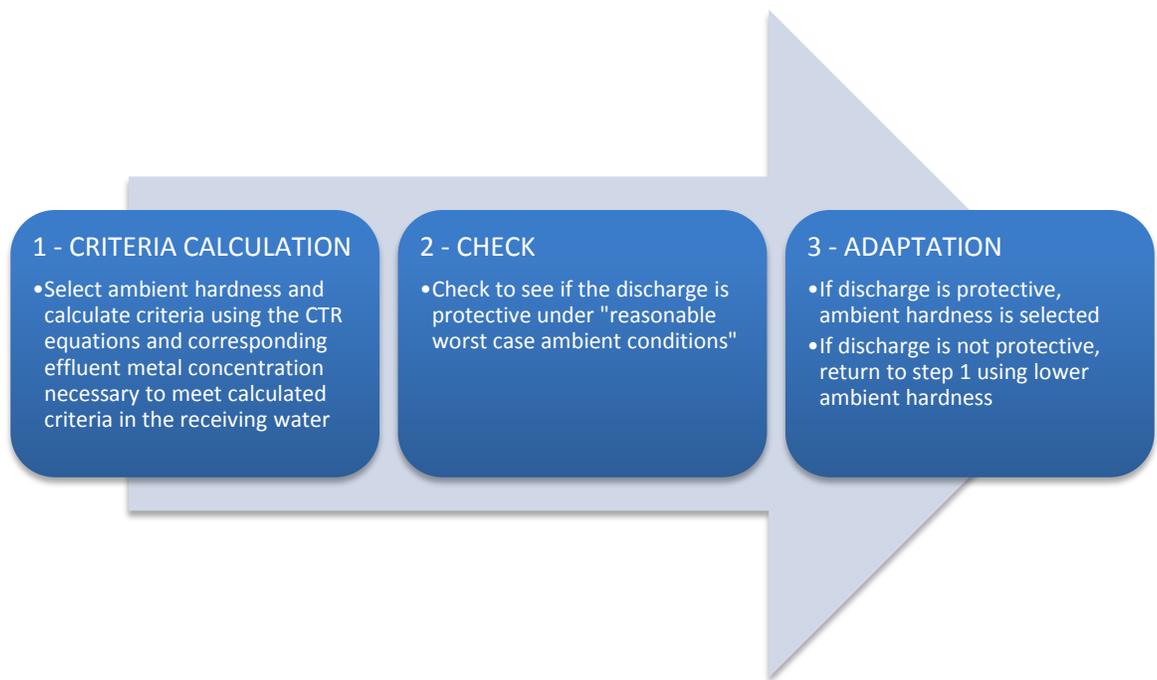
¹ For this discussion, all hardness values are expressed in mg/L as CaCO₃.

² 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

- “High receiving water flow (maximum receiving water flow).” This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.
- “Low receiving water hardness.” The minimum ambient receiving water hardness condition will be selected to represent the reasonable worst case receiving water hardness.
- “Background ambient metal concentration at criteria.” This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the facility’s discharge). This is a design condition that will be used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

Iterative approach. An iterative analysis will be used to select the ambient hardness to calculate the criteria that will result in effluent limitations that protect beneficial uses under all flow conditions.

The iterative approach is summarized in the following algorithm and described below in more detail.



1. **CRITERIA CALCULATION.** CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.¹ This should not be confused with an effluent limit. Rather, it is the effluent concentration allowance (ECA), which is synonymous with the wasteload allocation defined by U.S. EPA as “a definition of effluent water quality that is necessary to meet the water quality standards in the

¹ SIP Section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.

*receiving water.*¹ If effluent limits are found to be needed, the limits are calculated to enforce the ECA considering effluent variability and the probability basis of the limit.

2. CHECK. U.S. EPA's simple mass balance equation² is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.
3. ADAPT. If step 2 results in:
 - (A) receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.
 - (B) receiving water metal concentration greater than CTR criteria, then return to bullet 1, selecting a lower ambient hardness value.

The CTR's hardness dependent metals criteria equations contain metal-specific constants, so the criteria vary depending on the metal. Therefore, steps 1 through 3 must be repeated separately for each metal until ambient hardness values are determined that will result in criteria and effluent limitations that comply with the CTR and protect beneficial uses for all metals.

Results of Iterative Analysis

The above iterative analysis for each CTR hardness-dependent metal will be used to select ambient hardness values. Using these hardness values to calculate criteria, which are actual ambient sample, will result in effluent limitations that are protective under all ambient flow conditions. The ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions.

This General Order includes effluent limitations for copper, lead, and zinc which are dependent on water hardness. The CTR expresses the criteria for these metals through equations where the hardness of the receiving water is a variable. To simplify the permitting process for this General Order, it was necessary that fixed hardness values be used in these equations.

Using the hardness values determined as described above, the Central Valley Water Board will determine the effluent limitations applicable to each Discharger from the appropriate table of limits (see Tables 7A through 9F) of this General Order. Tables 7A through 9F contain effluent limitations for copper, lead, and zinc with ranges of hardness between 0 mg/L and 400 mg/L.

3. Determining the Need for WQBEL's

Effluent limitations must be established for discharges that have the reasonable potential to exceed water quality standards. Since this is a General Order for municipal wastewater treatment facilities, the Central Valley Water Board evaluated the pollutants with applicable effluent limitations in individual NPDES permits for Dischargers that are potentially eligible for coverage under this General Order in order to identify the parameters of concern in these discharges. This General Order includes effluent limitations for the parameters of concern identified through this analysis. Screening levels are established in Attachment C of this General Order for all priority pollutants and other

¹ U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.

² U.S. EPA NPDES Permit Writers' Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

constituents of concern based on the most protective water quality objectives/criteria. Upon receipt of a Notice of Intent for coverage under this General Order, the Central Valley Water Board will conduct an RPA for the discharge using the effluent and ambient background data as discussed in section V.C.2.b of this Fact Sheet, the screening levels in Attachment C, and the RPA procedures discussed below. Based on the results of the RPA, the Notice of Applicability will specify the effluent limitations applicable to a specific Discharger.

a. Priority Pollutants

Attachment C includes screening levels for all priority pollutants. For waters with the MUN use, the screening levels are based on the most stringent of the CTR criteria for protection of human health for waters from which both water and organisms are consumed, CTR criteria for protection of aquatic life, and MCL's. For waters without the MUN use, the screening levels are based on the most stringent of the CTR criteria for protection of human health for waters from which organisms only are consumed and the CTR criteria for protection of aquatic life.

Several priority pollutants do not have applicable CTR criteria or MCL's. Water quality limits have been developed that could be used to interpret narrative Basin Plan objectives for several of these pollutants, including chloroethane, methyl chloride, 2-nitrophenol, 4-nitrophenol, 3-methyl-4-chlorophenol, 4-bromophenyl phenyl ether, 2,6-dinitrotoluene, naphthalene, and delta-BHC. However, analysis of dilution, proximity of downstream diversions, and other factors is required in order to determine the applicability of interpreting the narrative objective for these pollutants based on water quality limits. This type of analysis is beyond the scope of this General Order. In addition to these pollutants, several priority pollutants have no CTR criteria, MCL's, or alternative water quality limits to interpret narrative Basin Plan objectives. These pollutants include 2-chloroethylvinyl ether, acenaphthylene, benzo(ghi)perylene, bis(2-chloroethoxy)methane, 4-chlorophenyl phenyl ether, di-n-octyl phthalate, and phenanthrene. If detectable concentrations of these pollutants are present in the discharge, additional effluent and ambient receiving water monitoring may be established, as specified in the Notice of Applicability from the Executive Officer. The additional monitoring would be used to determine if the discharge is adversely impacting a beneficial use (i.e., violating the receiving water limitation in section VI.A.4 of this General Order). If the discharge is found to be adversely affecting beneficial uses, the Central Valley Water Board would take the appropriate enforcement actions, terminate coverage for the discharge under this General Order, and/or take other actions to resolve the violation.

To conduct the RPA for priority pollutants, the Central Valley Water Board will use the effluent and ambient background data as discussed in section V.C.2.b of this Fact Sheet, the screening levels in Attachment C, and the procedures specified in section 1.3 of the SIP.

Based on the evaluation of pollutants with applicable effluent limitations in individual NPDES permits for Dischargers that are potentially eligible for coverage under this General Order, the Central Valley Water Board has identified the following priority pollutants of concern that are currently in discharges from municipal wastewater treatment plants: arsenic, bis (2-ethylhexyl) phthalate, chlorodibromomethane, copper, cyanide, dichlorobromomethane, lead, tetrachloroethylene, and zinc. This General Order includes effluent limitations for these priority pollutants of concern. Based on the RPA results for a specific Discharger, the Notice of Applicability will specify effluent limitations for those priority pollutants present in the discharge at

concentrations that exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives/criteria. The applicable water quality objectives/criteria for the priority pollutants of concern in discharges from municipal wastewater treatment plants are as follows:

- i. **Arsenic.** The CTR includes maximum 1-hour average and 4-day average criteria of 340 µg/L and 150 µg/L, respectively, for total recoverable arsenic for the protection of freshwater aquatic life, which is applicable for all water bodies. DDW has adopted a Primary MCL for arsenic of 10 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective.

Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins includes a site-specific objective of 10 µg/L for dissolved arsenic in the Sacramento-San Joaquin Delta. Using the default U.S. EPA acute translator of 1, the objective is 10 µg/L as total recoverable. The Central Valley Water Board has identified the following Dischargers located in the Sacramento-San Joaquin Delta as being potentially eligible for coverage under this General Order: City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility. This General Order includes a screening level in Attachment C and effluent limitations in section V.A.1.b.iv of this General Order for total recoverable arsenic based on the site-specific objective, which are applicable to discharges within the Sacramento-San Joaquin Delta.

- ii. **Bis (2-ethylhexyl) Phthalate.** The CTR includes a criterion of 1.8 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed, which is applicable for waters with the MUN use. The CTR includes a criterion of 5.9 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which organisms only are consumed, which is applicable for waters without the MUN use. DDW has adopted a Primary MCL for bis (2-ethylhexyl) phthalate of 4 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective.

Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, an analytical equipment, and sources of detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. In conducting the RPA for bis (2-ethylhexyl) phthalate, the Central Valley Water Board will not utilize data that are known to be the result of sample contamination issues (e.g., where the laboratory report shows that the pollutant was detected in the method blank or where the Discharger documents a known source of the pollutant in the sample, such as plastic tubing in composite samplers). Where required, Dischargers shall conduct monitoring for bis (2-ethylhexyl) phthalate using clean sampling techniques to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

- iii. **Chlorodibromomethane.** The CTR includes a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters from which both water and organisms are consumed, which is applicable for waters with the MUN use. The CTR includes a criterion of 34 µg/L for chlorodibromomethane for the protection of human health for waters from which organisms only are consumed, which is applicable for waters without the MUN use.

- iv. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Attachment C includes screening levels for copper based on the CTR aquatic life criteria for multiple increments of hardness between 0 mg/L and 400 mg/L. The Central Valley Water Board will determine the hardness to be used to select the appropriate screening level in accordance with the approach detailed in section V.C.2.e of this Fact Sheet. If the discharge exhibits reasonable potential to cause or contribute to an exceedance of water quality objectives/criteria for copper, the same hardness will be used to determine the appropriate effluent limitations for copper from section V.A.1.b.iii of this General Order, which shall be specified in the Notice of Applicability.

The CTR aquatic life criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. As discussed in section V.C.2.d of this Fact Sheet, U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. In the absence of site-specific translators, the default U.S. EPA translators were used to calculate the screening levels and effluent limitations for copper. For the City of Grass Valley, Wastewater Treatment Plant, this General Order allows for the acute and chronic CTR criteria and associated effluent limitations (if necessary) for copper to be calculated using site-specific translators. If a Discharger performs studies to determine a site-specific translator, this General Order may be reopened to allow effluent limitations to be modified for that Discharger.

The CTR aquatic life criteria are also expressed as a function of the water effect ratio (WER). In the absence of a site-specific WER, a default WER of 1 was used to calculate the screening levels and effluent limitations for copper. The Central Valley Water Board has approved site-specific WER's in the individual NPDES permits for the following Dischargers (see Table F-4). Consistent with the individual NPDES permits, this General Order allows for the CTR criteria and associated effluent limitations (if necessary) for copper to be calculated using the site-specific WER's for these Dischargers. If a Discharger performs studies to determine a site-specific WER, this General Order may be reopened to allow effluent limitations to be modified for that Discharger.

Table F-4. Site-Specific Water Effect Ratios for Copper and Zinc

Discharger	Individual Order / NPDES No.	Site-Specific WER Copper	Site-Specific WER Zinc
City of Auburn, Wastewater Treatment Plant	R5-2016-0038 / CA0077712	3.52	--
Donner Summit Public Utility District, Wastewater Treatment Plant	R5-2015-0068 / CA0081621	2.72	--
City of Galt, Wastewater Treatment Plant and Reclamation Facility	R5-2015-0123 / CA0081434	15	--
City of Grass Valley, Wastewater Treatment Plant	R5-2016-0012 / CA0079898	6.49	1.70
Cutler-Orosi Joint Powers Wastewater Authority, Wastewater Treatment Facility	R5-2013-0047-01 / CA0081485	3.1	--
El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant	R5-2014-0081 / CA0078662	9.7	1.7
El Dorado Irrigation District, El Dorado Hills Wastewater Treatment Plant	R5-2013-0003 / CA0078671	8.05	--
United Auburn Indian Community, Thunder Valley Wastewater Treatment Plant	R5-2015-0077 / CA0084697	24.5	--

Discharger	Individual Order / NPDES No.	Site-Specific WER Copper	Site-Specific WER Zinc
United States Department of the Interior, National Park Service, Yosemite National Park, El Portal Wastewater Treatment Facility	R5-2014-0068 / CA0081759	2.0	--

The CTR includes a criterion of 1,300 µg/L for copper for the protection of human health for waters from which both water and organisms are consumed, which is applicable for waters with the MUN use. DDW has adopted a Secondary MCL for copper of 1,000 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective.

Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins includes a site-specific objective of 10 µg/L for dissolved copper in the Sacramento-San Joaquin Delta. Using the default U.S. EPA acute translator of 0.96, the objective is 10.4 µg/L as total recoverable. The Central Valley Water Board has identified the following Dischargers located in the Sacramento-San Joaquin Delta as being potentially eligible for coverage under this General Order: City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility. This General Order includes a screening level in Attachment C and effluent limitations in section V.A.1.b.iv of this General Order for total recoverable copper based on the site-specific objective, which are applicable to discharges within the Sacramento-San Joaquin Delta.

- v. **Cyanide.** The CTR includes maximum 1-hour average and 4-day average criteria of 22 µg/L and 5.2 µg/L, respectively, for cyanide for the protection of freshwater aquatic life, which is applicable for all water bodies. The CTR includes a criterion of 700 µg/L for cyanide for the protection of human health for waters from which both water and organisms are consumed, which is applicable for waters with the MUN use. The CTR includes a criterion of 220,000 µg/L for cyanide for the protection of human health for waters from which organisms only are consumed, which is applicable for waters without the MUN use. DDW has adopted a Primary MCL for cyanide of 150 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective.

Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins includes a site-specific objective of 10 µg/L for cyanide in the Sacramento-San Joaquin Delta. The Central Valley Water Board has identified the following Dischargers located in the Sacramento-San Joaquin Delta as being potentially eligible for coverage under this General Order: City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility. This General Order includes a screening level in Attachment C and effluent limitations in section V.A.1.b.iv of this General Order for cyanide based on the site-specific objective, which are applicable to discharges within the Sacramento-San Joaquin Delta.

- vi. **Dichlorobromomethane.** The CTR includes a criterion of 0.56 µg/L for dichlorobromomethane for the protection of human health for waters from which both water and organisms are consumed, which is applicable for waters with the MUN use. The CTR includes a criterion of 46 µg/L for dichlorobromomethane for

the protection of human health for waters from which organisms only are consumed, which is applicable for waters without the MUN use.

- vii. **Lead.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. Attachment C includes screening levels for lead based on the CTR aquatic life criteria for multiple increments of hardness between 0 mg/L and 400 mg/L. The Central Valley Water Board will determine the hardness to be used to select the appropriate screening level in accordance with the approach detailed in section V.C.2.e of this Fact Sheet. If the discharge exhibits reasonable potential to cause or contribute to an exceedance of water quality objectives/criteria for lead, the same hardness will be used to determine the appropriate effluent limitations for lead from section V.A.1.b.iii of this General Order, which shall be specified in the Notice of Applicability.

The CTR aquatic life criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. As discussed in section V.C.2.d of this Fact Sheet, U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. In the absence of site-specific translators, the default U.S. EPA translators were used to calculate the screening levels and effluent limitations for lead. If a Discharger performs studies to determine a site-specific translator, this General Order may be reopened to allow effluent limitations to be modified for that Discharger.

The CTR aquatic life criteria are also expressed as a function of the WER. In the absence of a site-specific WER, a default WER of 1 was used to calculate the screening levels and effluent limitations for lead. If a Discharger performs studies to determine a site-specific WER, this General Order may be reopened to allow effluent limitations to be modified for that Discharger.

DDW has adopted a Primary MCL for lead of 15 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective.

- viii. **Tetrachloroethylene.** The CTR includes a criterion of 0.8 µg/L for tetrachloroethylene for the protection of human health for waters from which both water and organisms are consumed, which is applicable for waters with the MUN use. The CTR includes a criterion of 8.85 µg/L for tetrachloroethylene for the protection of human health for waters from which organisms only are consumed, which is applicable for waters without the MUN use. DDW has adopted a Primary MCL for tetrachloroethylene of 5 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective.
- ix. **Zinc.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. Attachment C includes screening levels for zinc based on the CTR aquatic life criteria for multiple increments of hardness between 0 mg/L and 400 mg/L. The Central Valley Water Board will determine the hardness to be used to select the appropriate screening level in accordance with the approach detailed in section V.C.2.e of this Fact Sheet. If the discharge exhibits reasonable potential to cause or contribute to an exceedance of water quality objectives/criteria for zinc, the same hardness will be used to determine the appropriate effluent limitations for zinc from section V.A.1.b.iii of this General Order, which shall be specified in the Notice of Applicability.

The CTR aquatic life criteria for zinc are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. As discussed in section

V.C.2.d of this Fact Sheet, U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. In the absence of site-specific translators, the default U.S. EPA translators were used to calculate the screening levels and effluent limitations for zinc. For the City of Grass Valley, Wastewater Treatment Plant, this General Order allows for the acute and chronic CTR criteria and associated effluent limitations (if necessary) for zinc to be calculated using site-specific translators. If a Discharger performs studies to determine a site-specific translator, this General Order may be reopened to allow effluent limitations to be modified for that Discharger.

The CTR aquatic life criteria are also expressed as a function of the WER. In the absence of a site-specific WER, a default WER of 1 was used to calculate the screening levels and effluent limitations for zinc. The Central Valley Water Board has approved site-specific WER's in the individual NPDES permits for the above Dischargers (see Table F-4). Consistent with the individual NPDES permits, this General Order allows for the CTR criteria and associated effluent limitations (if necessary) for zinc to be calculated using the site-specific WER's for these Dischargers. If a Discharger performs studies to determine a site-specific WER, this General Order may be reopened to allow effluent limitations to be modified for that Discharger.

DDW has adopted a Secondary MCL for zinc of 5,000 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective.

Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins includes a site-specific objective of 100 µg/L for dissolved zinc in the Sacramento-San Joaquin Delta. Using the default U.S. EPA acute translator of 0.978, the objective is 102 µg/L as total recoverable. The Central Valley Water Board has identified the following Dischargers located in the Sacramento-San Joaquin Delta as being potentially eligible for coverage under this General Order: City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility. This General Order includes a screening level in Attachment C and effluent limitations in section V.A.1.b.iv of this General Order for total recoverable zinc based on the site-specific objective, which are applicable to discharges within the Sacramento-San Joaquin Delta.

b. Other Constituents of Concern

Attachment C includes screening levels for several other constituents of concern. For waters with the MUN use, the screening levels are based on the most stringent Basin Plan numeric and narrative objectives (including those for protection of drinking water supplies) and MCL's. For waters without the MUN use, the screening levels are based on the most stringent Basin Plan numeric and narrative objectives (excluding those for protection of drinking water supplies).

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. For other constituents of concern, the Central Valley Water Board is not restricted to one particular RPA method. The Central

Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for other constituents of concern in this General Order. To conduct the RPA for other constituents of concern, the Central Valley Water Board will use the effluent and ambient background data as discussed in section V.C.2.b, the screening levels in Attachment C, and the pollutant-specific procedures detailed in this section.

Based on the evaluation of pollutants with applicable effluent limitations in individual NPDES permits for Dischargers that are potentially eligible for coverage under this General Order, the Central Valley Water Board has identified the following other constituents of concern in discharges from municipal wastewater treatment plants: aluminum, ammonia, chlorine residual, diazinon and chlorpyrifos, fluoride, manganese, mercury and methylmercury, methylene blue active substances (MBAS or foaming agents), nitrate plus nitrite, nitrite, pathogens, pH, salinity, settleable solids and temperature. This General Order includes effluent limitations for these other constituents of concern. Based on the RPA results for a specific Discharger, the Notice of Applicability will specify effluent limitations for those other constituents of concern present in the discharge at concentrations that exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives/criteria. The applicable water quality objectives/criteria for the other constituents of concern in discharges from municipal wastewater treatment plants are as follows:

- i. **Aluminum.** Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and total organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic life. Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum (Al^{3+}) binding to negatively charged fish gills.

The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38 Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule or CTR), including metals criteria. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Region's NPDES permits are based on the Basin Plans' narrative toxicity objective. The Basin Plans' Policy for Application of Water Quality Objectives requires the Central Valley Water Board to consider, "*on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations. In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective.*" Relevant information includes, but is not limited to (1) U.S. EPA Ambient Water Quality Criteria (NAWQC) and subsequent Correction, (2) site-specific conditions of the

receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, p. IV.-17.00; see also, 40 C.F.R. 122.44(d)(vi).)

U.S. EPA NAWQC. U.S. EPA recommended the NAWQC aluminum acute criterion at 750 µg/L based on test waters with a pH of 6.5 to 9.0. U.S. EPA also recommended the NAWQC aluminum chronic criterion at 87 µg/L based upon toxicity tests. All test waters contained hardness at 12 mg/L as CaCO₃.

- (a) Acute toxicity tests at various aluminum doses were conducted in various acidic waters (pH 6.0 – 6.5) on 159- and 160-day old striped bass. The 159-day old striped bass showed no mortality in waters with pH at 6.5 and aluminum doses at 390 µg/L, and the 160-day old striped bass showed 58% mortality at a dose of 174.4 µg/L in same pH waters. However, the 160-day old striped bass showed 98% mortality at an aluminum dose of 87.2 µg/L in waters with pH at 6.0, which is U.S. EPA's basis for the 87 µg/L chronic criterion. The varied results draw into question this study and the applicability of the NAWQC chronic criterion of 87 µg/L.
- (b) Chronic toxicity effects on 60-day old brook trout were evaluated in circumneutral pH waters (6.5-6.9 pH) in five cells at various aluminum doses (4, 57, 88, 169, and 350 µg/L). Chronic evaluation started upon hatching of eyed eggs of brook trout, and their weight and length were measured after 45 days and 60 days. The 60-day old brook trout showed 24% weight loss at 169 µg/L of aluminum and 4% weight loss at 88 µg/L of aluminum, which is the basis for U.S. EPA's chronic criteria. Though this test study shows chronic toxic effects of 4% reduction in weight after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the NAWQC chronic criterion of 87 µg/L is questionable.

Site-specific Conditions. U.S. EPA advises that a WER may be more appropriate to better reflect the actual toxicity of aluminum to aquatic organisms when the pH and hardness conditions of the receiving water are not similar to that of the test conditions.¹ Where effluent and receiving water monitoring data indicate that the pH and hardness values are not similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, the Central Valley Water Board does not expect aluminum to be as toxic in the receiving water as in the previously described toxicity tests.

Local Environmental Conditions and Studies. Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. Where the pH and hardness of a receiving water are similar to those shown in the table below, the results of the site-specific aluminum toxicity tests may be relevant and appropriate for the receiving water. As shown in the following table, all EC₅₀² toxicity study result values are at concentrations of aluminum above

¹ "The value of 87 micro-g/L is based on a toxicity test with striped bass in water with pH = 6.5-6.6 and hardness < 10 mg/L. Data in [a 1994 Study] indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time." U.S. EPA 1999 NAWQC Correction, Footnote L

² The effect concentration is a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g., Probit Model). EC₅₀ is a point estimate of the toxicant concentration that would cause an observable adverse effect in 50 percent of the test organisms. The EC₅₀ is used in toxicity testing to determine the appropriate chronic criterion.

5,000 µg/L. Thus, the toxic effects of aluminum in these surface waters, is less toxic (or less reactive) to aquatic species than demonstrated in the toxicity tests that U.S. EPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests U.S. EPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and may not be applicable to all water bodies in the Central Valley Region.

Central Valley Region Site-Specific Aluminum Toxicity Data

Discharger	Test Waters	Hardness Value	Total Aluminum EC ₅₀ Value	pH	WER
<i>Oncorhynchus mykiss</i> (rainbow trout)					
Manteca	Surface Water/Effluent	124	>8600	9.14	N/C
Auburn	Surface Water	16	>16500	7.44	N/C
Modesto	Surface Water/Effluent	120/156	>34250	8.96	>229
Yuba City	Surface Water/Effluent	114/164 ¹	>8000	7.60/7.46	>53.5
<i>Ceriodaphnia dubia</i> (water flea)					
Auburn	Effluent	99	>5270	7.44	>19.3
	Surface Water	16	>5160	7.44	>12.4
Manteca	Surface Water/Effluent	124	>8800	9.14	N/C
	Effluent	117	>8700	7.21	>27.8
	Surface Water	57	7823	7.58	25.0
	Effluent	139	>9500	7.97	>21.2
	Surface Water	104	>11000	8.28	>24.5
	Effluent	128	>9700	7.78	>25.0
	Surface Water	85	>9450	7.85	>25.7
	Effluent	106	>11900	7.66	>15.3
	Surface Water	146	>10650	7.81	>13.7
Modesto	Surface Water/Effluent	120/156	31604	8.96	211
Yuba City	Surface Water/Effluent	114/164 ¹	>8000	7.60/7.46	>53.5
Placer County (SMD 1)	Effluent	150	>5000	7.4 – 8.7	>13.7
<i>Daphnia magna</i> (water flea)					
Manteca	Surface Water/Effluent	124	>8350	9.14	N/C
Modesto	Surface Water/Effluent	120/156	>11900	8.96	>79.6
Yuba City	Surface Water/Effluent	114/164 ¹	>8000	7.60/7.46	>53.5

The Central Valley Water Board will evaluate site-specific information for each Discharger to determine the applicability of the NAWQC chronic criterion to a receiving water, including effluent and receiving water pH and hardness data and site-specific study information.

DDW has established Secondary MCL's to assist public drinking water systems in managing their drinking water for aesthetic conditions such as taste, color, and odor. The Secondary MCL for aluminum is 200 µg/L for protection of the MUN beneficial use. Title 22 requires compliance with Secondary MCL's on an annual average basis.

The applicable screening levels and effluent limitations shall be applied as follows:

- (a) If the Central Valley Water Board determines that the NAWQC chronic criterion is not applicable to a receiving water with the MUN use, the

screening level and associated effluent limitations (if applicable) will be based on the Secondary MCL of 200 µg/L. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the Central Valley Water Board will conduct the RPA for aluminum for this scenario by comparing the maximum observed calendar year annual average effluent aluminum concentration to the screening level.

- (b) If the Central Valley Water Board determines that the NAWQC chronic criterion is not applicable to a receiving water without the MUN use, the screening level and associated effluent limitations (if applicable) will be based on the NAWQC acute criterion of 750 µg/L. The Central Valley Water Board will conduct the RPA for aluminum for this scenario by comparing the maximum observed effluent aluminum concentration to the screening level.
- (c) If the Central Valley Water Board determines that the NAWQC chronic criterion is applicable to a receiving water, the screening level and associated effluent limitations (if applicable) will be based on the NAWQC chronic criterion (regardless of the applicability of the MUN use). The Central Valley Water Board will conduct the RPA for aluminum for this scenario by comparing the maximum observed effluent aluminum concentration to the screening level.

- ii. **Ammonia.** The 1999 U.S. EPA NAWQC for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC.

The U.S. EPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (the "2013 Criteria")¹. The 2013 Criteria is an update to U.S. EPA's 1999 Criteria, and varies based on pH and temperature. Although the 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including new toxicity data on sensitive freshwater mussels in the Family Unionidae, the species tested for development of the 2013 Criteria may not be present in some Central Valley waterways. The 2013 Criteria document therefore states that, "*unionid mussel species are not prevalent in some waters, such as the arid west ...*" and provides that, "*In the case of ammonia, where a state demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from the national criteria dataset to better represent the species present at the site.*"

The Central Valley Water Board issued a 3 April 2014 *California Water Code Section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life* (13267 Order) requiring Dischargers to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations

¹ Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater, published August 2013 [EPA 822-R-13-001]

calculated assuming mussels present using the 2013 Criteria. Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plans' narrative toxicity objective. The 1999 NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. The recommended criteria for waters where salmonids are present and absent, and early life stages are present, have been used in this General Order. In determining the appropriate acute criterion, the Central Valley Water Board will evaluate site-specific information to determine the presence or absence of salmonids in the receiving water, including the applicability of the cold freshwater habitat (COLD).

This General Order covers facilities that treat domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, without treatment, would be harmful to fish and would violate the Basin Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists and effluent limitations are required for all Dischargers covered by this General Order.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" With regard to POTW's, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems.*" (TSD, p. 50)

Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic

organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan narrative toxicity objective. Inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharges covered by this General Order have reasonable potential for ammonia and WQBEL's are required.

In order to protect against the worst-case short-term exposure of an organism, Attachment C includes screening levels based on the acute criterion (CMC) using pH values between 7.8 and 9.0. The screening level applicable to each Discharger shall be determined based on the maximum permitted pH or on the maximum observed effluent pH, whichever is lower. This screening level shall be used to determine the appropriate effluent limitations for ammonia from Tables 16A through 16D of this General Order, which shall be specified in the Notice of Applicability.

Attachment C includes screening levels based on the chronic criterion (30-day CCC) for a range of pH and temperatures. The Central Valley Water Board will determine the applicable screening level based on downstream receiving water pH and temperature data. If at least monthly paired pH and temperature receiving water data are available, the CCC will be determined by selecting a CCC from Tables C-5A and C-5B of Attachment C for each day when paired data are available, calculating a rolling 30-day average CCC, and selecting the minimum observed 30-day CCC. If sufficient paired receiving water data are not available, the CCC will be selected from Tables C-5A and C-5B of Attachment C using the maximum observed pH and 30-day average temperature of the downstream receiving water. Tables 15A through 15N of this General Order include effluent limitations for a range of CCC's, in 0.5 mg/L increments. The selected screening level from Attachment C shall be used to determine the appropriate effluent limitations for ammonia from Tables 15A through 15N of this General Order, which shall be specified in the Notice of Applicability.

- iii. **Chlorine, Total Residual.** U.S. EPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 mg/L and 0.019 mg/L, respectively. These criteria are protective of the Basin Plans' narrative toxicity objective.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent*

monitoring data.” With regard to POTW’s, U.S. EPA recommends that, “POTW’s should also be characterized for the possibility of chlorine and ammonia problems.” (TSD, p. 50)

Chlorine is extremely toxic to aquatic organisms. For Dischargers that utilize chlorine disinfection, the chlorine use and the potential for chlorine to be discharged provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

- iv. **Diazinon and Chlorpyrifos.** The Central Valley Water Board completed TMDL’s for diazinon and chlorpyrifos in the Sacramento-San Joaquin Delta, Sacramento and Feather Rivers, and the San Joaquin River and amended the Basin Plan for the Sacramento and San Joaquin River Basins to include diazinon and chlorpyrifos WLA’s and water quality objectives.

Chapter III (Water Quality Objectives) of the Basin Plan for the Sacramento and San Joaquin River Basins includes site-specific numeric objectives for diazinon and chlorpyrifos in these water bodies and Chapter IV (Implementation) identifies the requirements to meet the additive formula for the additive toxicity of diazinon and chlorpyrifos.

The Basin Plan states that “*The Waste Load Allocations (WLA) for all NPDES-permitted dischargers...shall not exceed the sum (S) of one (1) as defined below.*

$$S = \frac{C_d}{WQO_d} + \frac{C_c}{WQO_c} \leq 1.0$$

Where:

C_D = diazinon concentration in $\mu\text{g/L}$ of point source discharge for WLA...

C_C = chlorpyrifos concentration in $\mu\text{g/L}$ of point source discharge for the WLA...

WQO_d = acute or chronic diazinon water quality objective in $\mu\text{g/L}$.

WQO_c = acute or chronic chlorpyrifos water quality objective in $\mu\text{g/L}$.

Available samples collected within the applicable averaging period for the water quality objective will be used to determine compliance with the allocations and loading capacity. For purposes of calculating the sum (S) above, analytical results that are reported as ‘non-detectable’ concentrations are considered to be zero.”

The water quality objectives for chlorpyrifos are 0.025 $\mu\text{g/L}$ as a 1-hour average (acute) and 0.015 $\mu\text{g/L}$ as a 4-day average (chronic), not to be exceeded more than once in a 3-year period. The water quality objectives for diazinon are 0.16 $\mu\text{g/L}$ as a 1-hour average (acute) and 0.10 $\mu\text{g/L}$ as a 4-day average (chronic), not to be exceeded more than once in a 3-year period.

Due to the TMDL for diazinon and chlorpyrifos in the Sacramento-San Joaquin Delta, Sacramento and Feather Rivers, and the San Joaquin River, WQBEL’s for these constituents are required for discharges to these water bodies. The TMDL WLA applies to all NPDES dischargers to these water bodies and will serve as the basis for WQBEL’s.

- v. **Fluoride.** DDW has adopted a Primary MCL for fluoride of 2,000 $\mu\text{g/L}$, which is applicable for waters with the MUN use through the Basin Plans’ chemical constituent objective. Primary MCL’s are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with

these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the Central Valley Water Board will conduct the RPA for fluoride for waters with the MUN use by comparing the maximum observed calendar year annual average effluent fluoride concentration to the screening level. This Order does not include screening levels or effluent limitations for fluoride for waters without the MUN use.

- vi. **Manganese.** DDW has adopted a Secondary MCL for manganese of 50 µg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the Central Valley Water Board will conduct the RPA for manganese for waters with the MUN use by comparing the maximum observed calendar year annual average effluent manganese concentration to the screening level. This Order does not include screening levels or effluent limitations for manganese for waters without the MUN use.
- vii. **Mercury and Methylmercury**
 - (a) **Applicable to Discharges in the Sacramento-San Joaquin Delta.** The Basin Plan for the Sacramento and San Joaquin River Basins contains fish tissue objectives for all Delta waterways listed in Appendix 43 of the Basin Plan that states "...the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length.) The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length". The Delta Mercury Control Program contains aqueous methylmercury WLA's that are calculated to achieve these fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations of methylmercury greater than 0.06 mg/L (the concentration of methylmercury in water to meet the fish tissue objective). Table IV-7B of the Basin Plan specifies the WLA's for methylmercury for NPDES dischargers in the Delta. The Central Valley Water Board has identified the following Dischargers located in the Sacramento-San Joaquin Delta as being potentially eligible for coverage under this General Order: City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility. This General Order includes effluent limitations for methylmercury for these facilities based on the WLA's in the Basin Plan, which shall apply to these facilities upon issuance of a Notice of Applicability from the Executive Officer.
 - (b) **Applicable to 303(d)-Listed Water Bodies.** Many water bodies in the Central Valley Region are listed on the 303(d) list as impaired for mercury. The Central Valley Water Board is in the process of developing TMDL's for these water bodies. In order to limit mercury loads to current levels until TMDL's can be established, this General Order requires effluent performance-based effluent limitations for Dischargers proposing to discharge to water bodies that are impaired for mercury. If the Central Valley

Water Board plans to adopt a TMDL after the year 2022, this Order includes a final effluent limitation for total mercury. If the Central Valley Water Board plans to adopt a TMDL before the year 2022 (i.e., within the term of this General Order), this General Order includes an interim effluent limitation for total mercury effective until this General Order is amended to implement a WLA adopted as part of a TMDL for mercury.

- viii. **Methylene Blue Active Substances (MBAS or Foaming Agents).** DDW has adopted a Secondary MCL for MBAS of 0.5 mg/L, which is applicable for waters with the MUN use through the Basin Plans' chemical constituent objective. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the Central Valley Water Board will conduct the RPA for MBAS for waters with the MUN use by comparing the maximum observed calendar year annual average effluent MBAS concentration to the screening level. This Order does not include screening levels or effluent limitations for MBAS for waters without the MUN use.
- ix. **Nitrate and Nitrite.** DDW has adopted Primary MCL's for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

U.S. EPA has developed a Primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

This General Order covers facilities that treat domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, if untreated, will be harmful to fish and will violate the Basin Plans' narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia). Reasonable potential for nitrate and nitrite therefore exists and WQBEL's are required.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a*

variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” With regard to POTW’S, U.S. EPA recommends that, “*POTW’s should also be characterized for the possibility of chlorine and ammonia problems.*” (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required for all Dischargers to waters with the MUN use. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan narrative chemical constituents objective. Inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL’s are required for all Dischargers to waters with the MUN use.

Attachment C includes a screening level and section V.A.1.c.vi of this General Order includes effluent limitations for nitrite based on the Primary MCL for discharges to waters with the MUN use. If the maximum effluent nitrite concentration exceeds the screening level in Attachment C, then effluent limitations for nitrite will be specified in the Notice of Applicability.

x. **Pathogens**

(a) **Secondary Treatment Requirements.** In a letter to the Central Valley Water Board dated 8 April 1999, DDW indicated it would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 mL more than once in any 30 day period.

DDW drafted *Uniform Guidelines for Wastewater Disinfection* (retyped in November 2000) that recommend treatment and disinfection levels of discharges to waters of the State. The *Uniform Guidelines for Wastewater Disinfection* recommend treated wastewater have a median coliform bacteria of 23 MPN/100 mL when:

- (1) Discharges are to ephemeral streams that have little or no natural flow all or part of the year,
- (2) There is no nearby habitation,
- (3) There is limited use of the discharge area, and
- (4) Contact with the effluent is not encouraged.

Pursuant to DDW’s 8 April 1999 memo and *Uniform Guidelines for Wastewater Disinfection*, this Order includes effluent limitations for total

coliform organisms of 23 MPN/100 mL as a 7-day median and 240 MPN/100 mL, not to be exceeded more than once in a 30-day period for Dischargers of secondary treated wastewater that meet the eligibility criteria in section I.B.3 of this General Order. These coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways.

- (b) **Tertiary Treatment Requirements.** DDW has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as “...an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.” Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW’s reclamation criteria for discharges to receiving waters that are used for irrigation of agricultural land and for contact recreation purposes and that do not receive 20:1 dilution at all times. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

Raw domestic wastewater inherently contains human pathogens that threaten human health and life, and constitute a threatened pollution and nuisance under CWC Section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBEL’s are required.

U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL’s for pathogens in all permits for POTW’s discharging to contact recreational waters).*” U.S. EPA’s TSD also recommends that factors other than effluent data should be considered in the RPA, “*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*” (TSD, p. 50)

To protect the beneficial uses of receiving waters with the municipal and domestic supply, water contact recreation, and agricultural irrigation supply beneficial uses that, at times, have less than 20:1 dilution, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Dischargers covered by this General Order provide disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBEL's are required.

In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum for Dischargers that have discharges that do not receive 20:1 dilution at all times (except where the discharges meets the conditions in the *Uniform Guidelines for Wastewater Disinfection*), or that are otherwise required to provide tertiary treatment (e.g., where DDW has made a site-specific recommendation that tertiary treatment in addition to 20:1 dilution is necessary or where tertiary treatment has been required to comply with State and federal antidegradation requirements).

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DDW recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. For granular media filtration systems or equivalent, this Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum. For membrane filtration systems or equivalent, this Order includes operational specifications for turbidity of 0.2 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 0.5 NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD₅, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements for the existing Dischargers with individual NPDES permits that are potentially eligible for coverage under this General Order.

Final WQBEL's for BOD₅ and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD₅ is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD₅ and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is

the daily BOD₅ and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD₅ and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's for BOD₅ and TSS of 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD₅ and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. For some facilities, the Central Valley Water Board has also established a 90 percent removal limitation for BOD₅ and TSS, which is more stringent than the secondary treatment standards. In accordance with anti-backsliding requirements, this General Order specifies that 90 percent removal limitations be retained from a Discharger's current permit, if applicable.

- xi. **pH.** The Sacramento and San Joaquin River Basin Plan and the Tulare Lake Basin Plan contain the following pH water quality objectives:
- (a) The pH of all discharges within the Sacramento and San Joaquin River Basins (except Goose Lake in Modoc County) shall at all times be within the range of 6.5 and 8.5.
 - (b) The pH of all discharges to Goose Lake in Modoc County shall at all times be within the range of 7.5 and 9.5.
 - (c) The pH of all discharges within the Tulare Lake Basin shall at all times be within the range of 6.5 and 8.3.

Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH which if not properly controlled, would violate the Basin Plans' numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL's are required.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" (TSD, p. 50)

This General Order covers facilities that treat domestic wastewater. Although the Dischargers to be covered under this General Order may have the proper pH controls in place, the pH of the influent varies due to the nature of municipal sewage, which provides the basis for these types of discharges to have a reasonable potential to cause or contribute to an in-stream excursion above the

Basin Plans' numeric objective for pH. Therefore, WQBEL's for pH are required for all Dischargers covered under this General Order.

This General Order does not contain screening levels for pH. However, this Order does contain effluent limitations for pH based on the criteria discussed above.

xii. **Salinity**

(a) **Discharges in the Sacramento and San Joaquin River Basins.** The Basin Plan for the Sacramento and San Joaquin River Basins contains a chemical constituent objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

The Central Valley Water Board adopted a Basin Plan Amendment on 9 June 2017, which establishes salinity water quality objectives in the Lower San Joaquin River from Merced River to Vernalis. Furthermore, the Basin Plan Amendment modified the Salt and Boron TMDL to clarify that NPDES point source dischargers could participate in the real-time salinity management program in lieu of complying with the wasteload allocations. Therefore, this Order includes a reopener provision to modify salinity requirements, as appropriate, in accordance with the Basin Plan Amendment upon approval by the State Water Board, U.S. EPA, and the Office of Administrative Law.

Table F-5. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective ¹	Secondary MCL ^{2,3}	U.S. EPA NAWQC
Electrical Conductivity (µmhos/cm)	Varies ²	900, 1600, 2200	N/A
Total Dissolved Solids (mg/L)	Varies	500, 1000, 1500	N/A
Sulfate (mg/L)	Varies	250, 500, 600	N/A

Parameter	Agricultural WQ Objective ¹	Secondary MCL ^{2,3}	U.S. EPA NAWQC
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day

¹ Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

² The Secondary MCL's are stated as a recommended level, upper level, and a short-term maximum level.

³ The secondary MCL's objectives are specified total dissolved solids or electrical conductivity in addition to sulfate and chloride per the Basin Plan.

- (1) **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
- (2) **Electrical Conductivity.** The Secondary MCL for electrical conductivity is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum.
- (3) **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
- (4) **Total Dissolved Solids.** The Secondary MCL for total dissolved solids is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

Attachment C includes a screening level for electrical conductivity of 900 µmhos/cm for discharges to water bodies with the MUN use in the Sacramento and San Joaquin River Basins based on the Secondary MCL. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the Central Valley Water Board will conduct the RPA for salinity for waters with the MUN use in the Sacramento and San Joaquin River Basins by comparing the maximum observed calendar year annual average effluent electrical conductivity concentration to the screening level. This Order does not include screening levels or effluent limitations for electrical conductivity for waters without the MUN use. If the discharge exceeds the screening level in Attachment C, the Central Valley Water Board will specify a performance-based effluent limitation based on the maximum observed calendar year annual average electrical conductivity of the effluent in the Notice of Applicability. Electrical conductivity is an indicator parameter for salinity, and controlling electrical conductivity should ensure compliance with objectives for other salinity parameters. Therefore, this Order does not include screening levels or effluent limitations for chloride, sulfate, or total dissolved solids.

In order to ensure that all Dischargers will continue to control the discharge of salinity, this Order includes a requirement to implement a Salinity Evaluation and Minimization Plan. Additionally, for discharges that must protect the MUN beneficial use, if any calendar year annual average effluent electrical

conductivity concentration exceeds the applicable performance-based trigger, the Discharger will be required to submit and implement an updated Salinity Evaluation and Minimization Plan. This General Order also requires water supply monitoring to evaluate the relative contribution of salinity from the source water to the effluent.

(b) **Dischargers in the Tulare Lake Basin.** The Basin Plan for the Tulare Lake Basin at page IV-10 includes effluent limitations for discharges to navigable waters. The Basin Plan requires at a minimum, discharges to surface waters, including stream channels, to comply with the following effluent limitations:

(1) The maximum effluent electrical conductivity of a discharge shall not exceed the quality of the source water plus 500 µmhos/cm, or 1,000 µmhos/cm, whichever is more stringent.

(2) Dischargers shall not exceed an electrical conductivity of 1,000 µmhos/cm, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.

This Order includes effluent limitations for electrical conductivity, boron, and chloride based on the effluent limitations specified in the Basin Plan for the Tulare Lake Basin.

xiii. **Settleable Solids.** For inland surface waters, the Basin Plans state that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” The Central Valley Water Board finds that the discharge of secondary treated wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plans’ narrative objective for settleable solids, which are applicable to discharges from secondary treatment facilities.

xiv. **Temperature.** The Thermal Plan requires that, “*The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.*” This General Order covers facilities that treat domestic wastewater. Treated domestic wastewater is an elevated temperature waste, which could cause or threaten to cause the receiving water temperature to exceed temperature objectives established in the Thermal Plan. Therefore, reasonable potential exists for temperature and WQBEL’s are required for Dischargers in the Sacramento-San Joaquin Delta.

U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL’s for pathogens in all permits for POTW’s discharging to contact recreational waters).*” U.S. EPA’s TSD also recommends that factors other than effluent data should be considered in the RPA, “*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*” (TSD, p. 50)

This General Order covers facilities that treat domestic wastewater, which is an elevated temperature waste. This provides the basis for the discharge to have a reasonable potential to cause or contribute to an excursion above the Thermal Plan requirements. To ensure compliance with the Thermal Plan, an effluent limitation for temperature is included in this General Order for discharges in the Sacramento-San Joaquin Delta.

4. **WQBEL Calculations**

- a. This General Order includes WQBEL's for aluminum, ammonia, arsenic, bis (2-ethylhexyl) phthalate, BOD₅, boron, chloride, chlorine residual, chlorodibromomethane, copper, cyanide, diazinon and chlorpyrifos, dichlorobromomethane, electrical conductivity, fluoride, lead, manganese, MBAS, mercury, methylmercury, nitrate plus nitrite, nitrite, pH, settleable solids, temperature, tetrachloroethylene, total coliform organisms, TSS, and zinc. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections V.C.4.b through d, below.

- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$$ECA = C + D(C - B) \text{ where } C > B, \text{ and}$$
$$ECA = C \text{ where } C \leq B$$

where:

ECA	= effluent concentration allowance
D	= dilution credit
C	= the priority pollutant criterion/objective
B	= the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECA's based on MCL's, which implement the Basin Plans' chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

- c. **Basin Plan Objectives and MCL's.** For nitrate plus nitrite and nitrite, the Primary MCL is applied directly as an AMEL and an AWEL is calculated using an AWEL/MDEL multiplier (see Attachment G). For other constituents of concern based on Primary and Secondary MCL's, an AMEL is calculated by multiplying the Secondary MCL by the AMEL multiplier from the SIP and an AWEL is calculated using the MDEL/AMEL multiplier from the SIP (see Attachment G).
- d. **Basin Plan Limits.** The Tulare Lake Basin Plan includes effluent limitations for discharges to surface water for boron and chloride. These limitations are included as average monthly limitations in this Order. The statistical procedures included in the SIP and TSD are for calculating WQBELs from water quality objectives/criteria. Therefore, since the Basin Plan specifies limitations, not objectives, for these constituents it is impracticable to statistically develop other limitations.
- e. **Aquatic Toxicity Criteria.** WQBEL's for priority pollutants based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECA's are converted to equivalent long-term averages (i.e., LTA_{acute} and

LTA_{chronic}) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. WQBEL's for other constituents of concern based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP, except that an AWEL is calculated instead of an MDEL using an AWEL multiplier using a 98th percentile occurrence probability.

- f. **Human Health Criteria.** WQBEL's for priority pollutants based on human health criteria are also calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to the ECA and a statistical multiplier was used to calculate the MDEL.

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

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

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

where:

$mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL

M_A = statistical multiplier converting acute ECA to LTA_{acute}

M_C = statistical multiplier converting chronic ECA to LTA_{chronic}

5. Whole Effluent Toxicity (WET)

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

- a. **Acute Aquatic Toxicity.** The Basin Plans contain 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 for the Sacramento and San Joaquin River Basins at page III-8.00 and Basin Plan for the Tulare Lake Basin at page III-6). The Basin Plans also state that, "*...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...*".

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Therefore, due to the site-specific conditions of the potential discharges to be covered under this General Order, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might*

allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." Acute toxicity effluent limits are required to ensure compliance with the Basin Plans' narrative toxicity objective.

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Accordingly, effluent limitations for acute toxicity have been included in this General Order as follows:

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

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

- b. **Chronic Aquatic Toxicity.** The Basin Plans contain a narrative toxicity objective that state, "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 for the Sacramento and San Joaquin River Basins at page III-8.00 and Basin Plan for the Tulare Lake Basin at page III-6.)

No dilution has been granted for the chronic condition in this General Order. Therefore, chronic toxicity testing results exceeding 1.3 chronic toxicity unit (TUc) and exceeding 25% effect demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plans' narrative toxicity objective, if the cause of toxicity has not been addressed by the time of issuance of the Notice of Applicability.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Effluent Limitations and Discharge Specifications in section V.A.1.c of the Order includes a monthly median effluent limit (MMEL) and the Special Provisions in section VII.C.2.a of the Order includes requirements for Toxicity Reduction Evaluation (TRE) initiation if toxicity is demonstrated.

To ensure compliance with the Basin Plans' narrative toxicity objective, Dischargers are required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, the Special Provision contained at VII.C.2.a of this Order requires Dischargers to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the MMEL, the Discharger is required to initiate a TRE in accordance with an approved TRE workplan.

The Central Valley Water Board has observed that several Dischargers have experienced intermittent, low-level chronic toxicity (i.e., $TUc \leq 1.3$ and percent effect $\leq 25\%$). In these instances, Dischargers have conducted costly accelerated monitoring and TRE/TIE evaluations; however, the additional monitoring and evaluations did not identify the cause of the toxicity. This Order allows for Dischargers to conduct a Toxicity Evaluation Study (TES) in lieu of the TRE requirements, either individually or as part of a coordinated group, to determine the cause of the intermittent, low level toxicity, if the MMEL is less than 1.3 TUc and less than 25% effect if approved, or if the discharge has exceeded the MMEL twice or more in the past 12 month period and the cause is not identified and/or addressed.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

40 C.F.R. section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 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 C.F.R. section 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 MCL's) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for ammonia, BOD₅, and TSS because they are oxygen demanding substances. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

Mass-based effluent limitations shall be calculated and specified in the Notice of Applicability based upon the design average dry weather flow.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires average weekly and average monthly discharge limitations for POTW's unless impracticable. For priority pollutants, AWEL's have been replaced with MDEL's to be consistent with the SIP. For BOD₅, chlorine residual, pH, and TSS, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations specified in the Notice of Applicability for an existing Discharger shall be at least as stringent as the effluent limitations in the Discharger's individual NPDES permit, except where the relaxation and removal of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent WQBEL's "except in compliance with Section

303(d)(4).” CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

- i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL’s or WLA’s will assure the attainment of such water quality standards.
- ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

For the purposes of meeting either of the exceptions above, a receiving water shall be considered an attainment water if the receiving water is not listed as impaired on the 303(d) list for the constituent.¹

- b. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. The Notice of Applicability may remove or relax effluent limitations where the removal or relaxation complies with any of these exceptions.

One of these exceptions, CWA 402(o)(2)(B)(i), allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. Updated information that may be used to satisfy this exception include updated effluent and receiving water monitoring data collected subsequent to the adoption date of the individual NPDES permit that indicates that the discharge no longer exhibits reasonable potential to cause or contribute to an exceedance of water quality objectives/criteria, or construction of facility upgrades during the term of the individual NPDES permit that altered the character of the wastewater with regard to the pollutant (e.g., removal of effluent limitations for chlorine residual for a facility that converted from chlorine disinfection to UV disinfection during the permit term).

4. **Antidegradation Policies**

This Order specifies that effluent flow limitations specified in the Notice of Applicability shall not exceed the permitted flow rates in a Discharger’s individual NPDES permit in the absence of an approved antidegradation analysis. For Dischargers not requesting an increase in flow, this General Order will not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary where no increase in flow is requested. The Order requires compliance with applicable federal technology-based standards and with WQBEL’s where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

For new Dischargers and existing Dischargers requesting an increase in flow from those specified in their individual NPDES permit, the Notice of Intent (Attachment B) requires an antidegradation analysis meeting the requirements of 40 C.F.R. 131.12 and State Water

¹ “The exceptions in Section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list.” State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality of Waters in California". See Administrative Procedures Update (APU) 90-004 for additional guidance. A Notice of Applicability will not be issued to a Discharger if the discharge is not consistent with antidegradation requirements.

This General Order allows for the removal or relaxation of existing effluent limitations for constituents in which updated monitoring data demonstrate that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. The Central Valley Water Board finds that the removal or relaxation of the effluent limitations will not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal or relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

E. Interim Effluent Limitations

The State Water Board's Resolution 2008-0025 "Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits" (Compliance Schedule Policy) requires the Central Valley Water Board to establish interim numeric effluent limitations in this Order for compliance schedules longer than 1 year. As discussed in section VII.B.7 of this Fact Sheet, the Central Valley Water Board is approving compliance schedules longer than 1 year for methylmercury. The Compliance Schedule Policy requires that interim effluent limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent.

The interim effluent limitations for methylmercury are based on Facility performance and have been retained from the individual NPDES permits for the applicable Dischargers.

1. **Interim Limits for Total Mercury.** The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or previous final permit limitations, whichever is more stringent. When feasible, interim limitations must correspond with final permit effluent limitations with respect to averaging bases (e.g., AMEL, MDEL, average monthly, etc.) for effluent limitations for which compliance protection is intended.

For mercury, the Delta Mercury Control Program requires POTW's to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of the 12-month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges. The interim effluent limitations for total mercury are based on Facility performance and have been retained from the existing individual NPDES permits.

The Central Valley Water Board finds that the Dischargers listed in table below can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this General Order. Interim limitations are established when compliance with final 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 interim effluent limitations for total mercury:

Table F-6. Interim Effluent Limitations for Total Mercury

Discharger	Individual Order / NPDES No.	Interim Limitation (grams/year)
City of Lodi, White Slough Water Pollution Control Facility	R5-2013-0125-01 / CA0079243	23
City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility	R5-2015-0026 / CA0081558	90

F. Land Discharge Specifications

This General Order does not authorize site specific discharges to land; however, this General Order does authorize the use of unlined ponds (e.g., treatment ponds, emergency storage, equalization, polishing) as part of the treatment system for which the specifications are provided in section VII.C.4.c, Pond Operating Specifications, of this General Order. For Dischargers enrolled under this General Order that discharge to land by means other than lined or unlined ponds that are part of the treatment system, or to ponds that are part of the treatment system but are otherwise regulated under separate WDR’s, site-specific discharges to land will be regulated through a separate WDRs.

G. Recycling Specifications

This General Order does not authorize the production or use of recycled water. For Dischargers enrolled under this General Order that also produce and/or use recycled water, the production and/or use of recycled water will be regulated through separate WDR’s, the General Order for Water Recycling Requirements (WQ 2016-0068-DDW), or another applicable water recycling order.

VI. 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 MCLs in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plans. The Basin

Plans state that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plans include numeric and narrative water quality objectives for various beneficial uses and water bodies. This General Order contains receiving surface water limitations based on the Basin Plans’ numerical and narrative water quality objectives for ammonia, bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater

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

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. 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.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. 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) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. 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. **Mercury.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 spans a period of approximately 9 years. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load allocations and WLA’s after implementing all reasonable load reduction strategies. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules may be adjusted at the end of Phase 1, or subsequent program reviews, as appropriate. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.
- 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 site-specific TRE or, under certain circumstances, may be allowed to participate in an approved TES in lieu of conducting a site-specific TRE. This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE and/or TES.

- c. **Water Effects Ratios and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents, except for copper (United States Department of the Interior, National Park Service, Yosemite National Park, El Portal Wastewater Treatment Facility; United Auburn Indian Community, Thunder Valley Casino Wastewater Treatment Plant; City of Grass Valley, Wastewater Treatment Plant; City of Auburn, Wastewater Treatment Plant; City of Galt, Wastewater Treatment Plant and Reclamation Facility; Cutler-Orosi Joint Powers Wastewater Authority, Wastewater Treatment Facility; El Dorado Irrigation District, El Dorado Hills Wastewater Treatment Plant; El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant; and Donner Summit Public Utility District, Wastewater Treatment Plant) and zinc (City of Grass Valley, Wastewater Treatment Plant; and El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant). 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, except for copper and zinc (City of Grass Valley, Wastewater Treatment Plant).

If a Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this General Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

- d. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- e. **Diazinon and Chlorpyrifos Basin Plan Amendment.** Diazinon is a pesticide that has been banned for residential use; however, it sometimes is still detected in surface waters. There are existing water quality objectives in the Basin Plan for diazinon in the Feather River, Sacramento River, San Joaquin River, and Sacramento-San Joaquin Delta. In addition, the Central Valley Water Board adopted a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. The Basin Plan Amendment will also apply diazinon water quality objectives to additional surface waterbodies. The State Water Board and the Office of Administrative Law have both approved the Basin Plan Amendment. U.S. EPA action on the Basin Plan Amendment is pending. This Order will be reopened to modify diazinon effluent limitations, as appropriate, in accordance with amendments to the Basin Plan.
- f. **Sacramento and San Joaquin River, and Tulare Lake Basin Variances for Salinity.** On 6 June 2014, the Central Valley Water Board adopted Resolution No. R5-2014-0074, *Amendments to the Water Quality Control Plan for the Sacramento and San Joaquin River Basins and the Water Quality Control Plan for the Tulare Lake Basin to Add Policies for Variances from Surface Water Quality Standards for Point Source Dischargers, Variance Program for Salinity, and Exception from Implementation of Water Quality Objectives for Salinity*, which became effective under the Clean Water Act on 8 July 2016 upon approval by U.S. EPA.

- g. **Basin Plan Amendment – Salinity Objectives for the Lower San Joaquin River.** The Central Valley Water Board adopted a Basin Plan Amendment on 9 June 2017, which establishes salinity water quality objectives in the Lower San Joaquin River from Merced River to Vernalis. Furthermore, the Basin Plan Amendment modified the Salt and Boron TMDL to clarify that NPDES point source dischargers could participate in the real-time salinity management program in lieu of complying with the wasteload allocations. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with the Basin Plan Amendment upon approval by the State Water Board, Office of Administrative Law, and U.S. EPA.

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 for the Sacramento and San Joaquin River Basins at page III-8.00 and Basin Plan for the Tulare Lake Basin at page III-6.)

The Monitoring and Reporting Program of this Order requires chronic WET monitoring for demonstration of compliance with the narrative toxicity objective or numeric chronic toxicity effluent limitation. In addition to WET monitoring, this provision includes requirements for TRE initiation if toxicity is demonstrated. This provision also allows for Dischargers to conduct a site-specific Toxicity Evaluation Study (TES) in lieu of a TRE.

A TES may be conducted in lieu of a TRE if the percent effect is less than 50%. Determining the cause of toxicity can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, the Central Valley Clean Water Association (CVCWA), in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

If the chronic toxicity is > 1 TUc (as 100/NOEC) **AND** the percent effect is ≤ 50 percent at **100** percent effluent, as the median of three consecutive bioassays collected within a 6 week period (see section VII.C.2.a.iv.(b) of the Order), the Discharger may participate in an approved TES in lieu of a TRE.

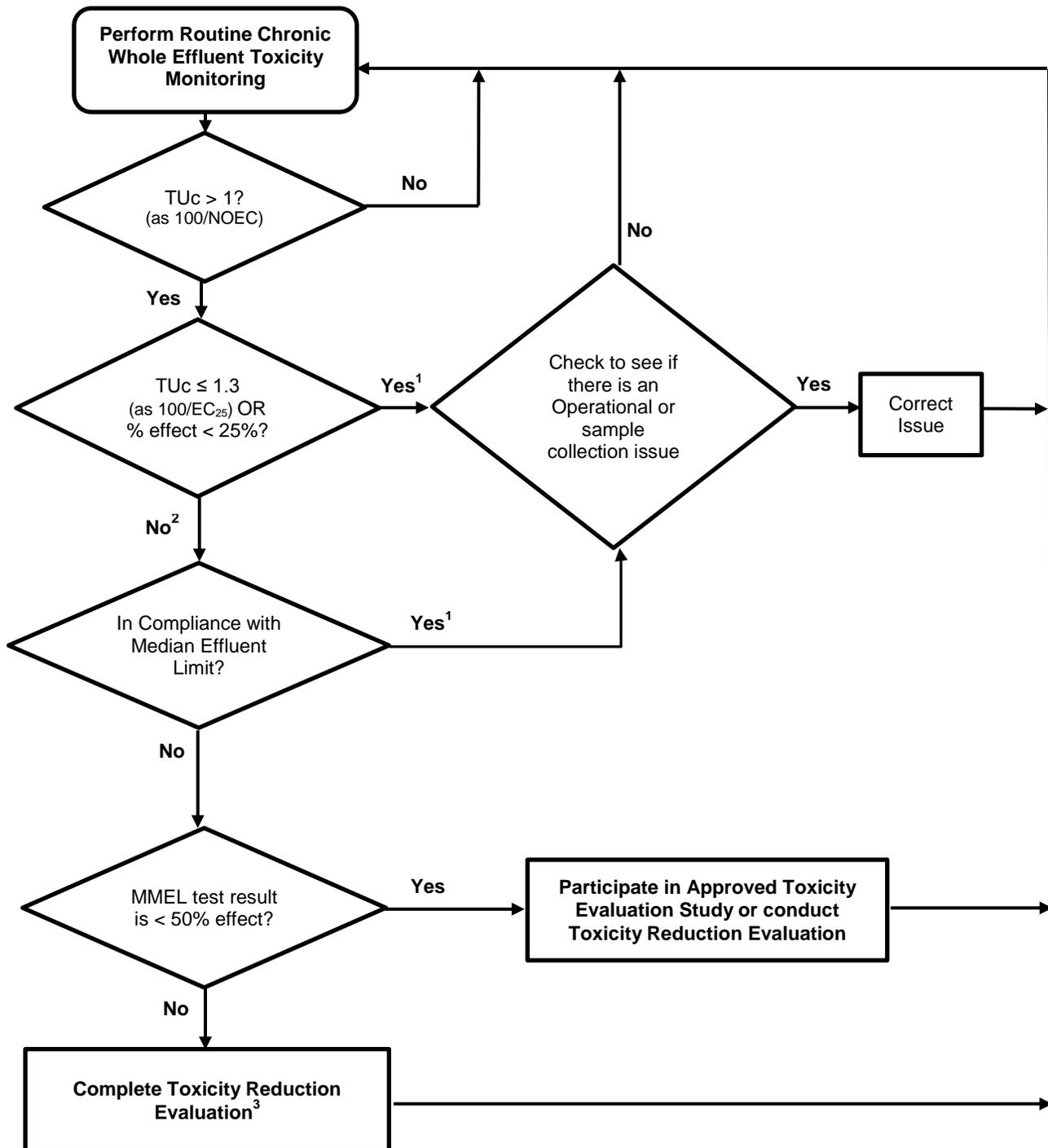
See the WET Monitoring Flow Chart (Figure F-1), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

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

- i. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.

- ii. *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.
- iii. *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition*, EPA 600/6-91/003, February 1991.
- iv. *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA/600/6-91/005F, May 1992.
- v. *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.
- vi. *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.
- vii. *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.
- viii. *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.
- ix. *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991.

**Figure F-1
WET Monitoring Flow Chart**



¹ The Discharger may participate in an approved TES if the discharge has exceeded the chronic toxicity effluent limitations or monitoring trigger twice or more in the past 12 month period and the cause is not identified and/or addressed.

² The Discharger may elect to take additional samples to determine the 3 sample median. All samples shall be collected within 6 weeks of each other.

³ The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.

Site-specific Toxicity Evaluation Study. This General Order covers some facilities that provide tertiary level treatment of municipal wastewater disinfected by UV treatment or chlorine. Sources of wastewater may include commercial, industrial, storm water, dry-weather diversions from MS4s, and domestic sources. These discharges are a high-quality effluent, but intermittent, chronic toxicity has been observed at times. This provision allows these Dischargers to conduct a site-specific TES to investigate the cause of toxicity, individually or as part of a coordinated group effort with other dischargers that evaluate low level and intermittent toxicity in effluent ($TUc \leq 1.3$ and percent effect is $\leq 25\%$ or the discharge has exceeded the MMEL twice or more in the past 12 month period and the cause is not identified and/or addressed). The study can be conducted in lieu of a TRE/TIE. Some studies completed within the Central Valley Region focusing on the role of the UV process in causing toxicity indicated, though not conclusively, that free radicals may play a role in the observed toxicity in effluent disinfected by a UV system (City of Woodland TIE/TRE findings from 2009-2014, Robertson-Bryan, Inc.).

- b. **Phase 1 Methylmercury Control Study. Phase 1 Methylmercury Control Study.** The Delta Mercury Control Program requires NPDES dischargers, working with other stakeholders, to conduct methylmercury control studies (Control Studies) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve their methylmercury load and waste load allocations. Control studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. The Dischargers have agreed to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study).

The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. The objective of the Control Studies is to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury load and wasteload allocations. In accordance with the Delta Mercury Control Plan, a workplan was submitted on 20 April 2013 by CVCWA on behalf of a group of POTW's in the region. The Central Valley Water Board commits to supporting an adaptive management approach. The adaptive management approach includes the formation of a Stakeholder Group(s) and a Technical Advisory Committee (TAC).

The Study shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve the methylmercury allocation. The Study also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure. The Study may evaluate the effectiveness of using inorganic (total) mercury controls to control methylmercury discharges. The Study shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness; and costs, potential environmental effects, and overall feasibility of the control actions. The Study shall also include proposed implementation plans and schedules to comply with methylmercury allocations as soon as possible. The Study shall be submitted by **20 October 2018**.

The Executive Officer may authorize extending the Study due date. The Executive Officer may, after public notice, extend the due date up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing

and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.

3. Best Management Practices and Pollution Prevention

- a. **Water Code Section 13263.3(d)(3) Pollution Prevention Plans.** A pollution prevention plan for mercury is required in this Order for Dischargers within the Sacramento-San Joaquin Delta per Water Code section 13263.3(d)(1)(C). The pollution prevention plans required in section VI.C.3.a of this Order, shall, at a minimum, meet the requirements outlined in Water Code section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:
- i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.
 - ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.
 - iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.
 - iv. A plan for monitoring the results of the pollution prevention program.
 - v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.
 - vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.
 - vii. A description of the Discharger's existing pollution prevention programs.
 - viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.
 - ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.
- b. **Mercury Exposure Reduction Program.** The Basin Plans' Delta Mercury Control Program requires Dischargers to participate in a Mercury Exposure Reduction Program. The Exposure Reduction Program is needed to address public health impacts of mercury in Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in Delta caught fish, such as subsistence fishers and their families. The Exposure Reduction Program must include elements directed toward:
- i. Developing and implementing community-driven activities to reduce mercury exposure;

- ii. Raising awareness of fish contamination issues among people and communities most likely affected by mercury in Delta-caught fish such as subsistence fishers and their families;
- iii. Integrating community-based organizations that serve Delta fish consumers, Delta fish consumers, tribes, and public health agencies in the design and implementation of an exposure reduction program;
- iv. Identifying resources, as needed, for community-based organizations and tribes to participate in the Program;
- v. Utilizing and expanding upon existing programs and materials or activities in place to reduce mercury, and as needed, create new materials or activities; and
- vi. Developing measures for program effectiveness.

This General Order requires Dischargers participate in a Mercury Exposure Reduction Program (MERP) in accordance with the Delta Mercury Control Program. The Dischargers have elected to provide financial support in the collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The workplan shall address the Exposure Reduction Program objective, elements, and the Dischargers' coordination with other stakeholders. The Dischargers shall integrate or, at minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities. The Dischargers shall continue to participate in the group effort to implement the workplan. The MERP requirements are subject to change depending on future Central Valley Water Board action.

- c. **Salinity Evaluation and Minimization Plan.** A Salinity Evaluation and Minimization Plan is required to be implemented in this General Order to ensure adequate measures are developed and implemented by the Dischargers to reduce the discharge of salinity to receiving waters. For discharges that must protect the MUN beneficial use with a calendar year annual average effluent electrical conductivity concentration above 900 $\mu\text{mhos/cm}$, the Notice of Applicability will require the Discharger to submit and implement a Salinity Evaluation and Minimization Plan if one has not already been submitted. This General Order also includes performance-based triggers for submitting an updated Salinity Evaluation and Minimization Plan to address increasing effluent salinity levels.

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

- a. **Filtration System Operating Specifications.** For Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order, turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process with granular media filtration is capable of reliably meeting a turbidity limitation of 2 NTU as a daily average. The tertiary treatment process with membrane filtration is capable of reliably meeting a turbidity limitation of 0.2 NTU more than 5 percent of the time within a 24-hour period, respectively. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not

exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU for granular media filtration. The operational specification requires that turbidity prior to disinfection shall not exceed 0.2 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 0.5 NTU for membrane filtration.

- b. **UV Disinfection System Operating Specifications.** Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order must ensure that wastewater is oxidized, coagulated (as needed), filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. To ensure that the UV disinfection system is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*" first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI guidelines) include UV operating specifications for compliance with Title 22. For water recycling in accordance with Title 22, the UV system shall be an approved system included in the *Treatment Technology Report for Recycled Water*, December 2009 (or a later version, as applicable) published by the DDW. The UV system shall also conform to all requirements and operating specifications of the NWRI guidelines. A memorandum dated 1 November 2004 issued by DDW to Regional Water Board executive officers recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of lamp sleeves, as well as, include provisions that specify minimum delivered UV dose that must be maintained (per the NWRI Guidelines).

For granular media filtration, the NWRI Guidelines recommend a minimum hourly average UV dose of 100 mJ/cm². Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 mJ/cm² and a minimum hourly average UV transmittance of 55% for granular media filtration systems, per the NWRI Guidelines. For membrane filtration, the NWRI Guidelines recommend a minimum hourly average UV dose of 80 mJ/cm². Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 80 mJ/cm² and a minimum hourly average UV transmittance of 65% for membrane filtration systems, per the NWRI Guidelines. If a Discharger conducts a site-specific UV engineering study that demonstrates a lower UV dose meets a Title 22 equivalent virus removal, the Notice of Applicability may include alternative UV operating specifications based on the engineering study.

- c. **Pond Operating Specifications.** The pond operating specifications are necessary to protect the public and the beneficial uses of the groundwater, and to prevent nuisance conditions.

5. **Special Provisions for Municipal Facilities (POTW's Only)**

a. **Pretreatment Requirements**

- i. As specified in the Notice of Applicability, Dischargers with a total design flow greater than 5 MGD and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards shall comply with the following pretreatment requirements. The Notice of Applicability may also require compliance with the following requirements for POTW's with a design flow of 5 MGD or less if the nature or volume of the industrial influent, treatment process upsets, violations of POTW effluent limitations, contamination of municipal sludge, or other circumstances warrant in order to prevent interference with the POTW or pass through.
- ii. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require POTW's to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.
- iii. 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 Central Valley Water Board, the State Water Board or U.S. EPA may take enforcement actions against the Discharger as authorized by the CWA.

- b. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (State Board General Order) on 2 May 2006. The Monitoring and Reporting Requirements for the State Board General Order were amended by Water Quality Order WQ 2008-0002-EXEC on 20 February 2008. The State Board General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the State Board General Order. The State Board General Order requires agencies to develop sanitary sewer management plans (SSMP's) and report all sanitary sewer overflows (SSO's), among other requirements and prohibitions.

Furthermore, the State Board General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VII. For instance, the 24-hour reporting requirements in this Order are not included in the State Board General Order. The Discharger must comply with both the State Board General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the State Board General Order by 1 December 2006.

- c. **Anaerobically Digestible Material.** Managers of POTW's increasingly are considering the addition of organic material such as food waste, fats, oils and grease (FOG) into their anaerobic digesters for co-digestion. Benefits of accepting these materials include increasing the volume of methane and other biogases available for energy production and ensuring such materials are disposed of at the POTW instead

of discharged into the collection system potentially causing sanitary sewer overflows. The State Water Board has been working with the California Department of Resources Recycling and Recovery (CalRecycle), the California Department of Food and Agriculture (CDFA), and the California Association of Sanitation Agencies (CASA) to delineate jurisdictional authority for the receipt of hauled-in anaerobically digestible material (ADM¹) at POTW's for co-digestion.

CalRecycle is proposing an exclusion from Process Facility/Transfer Station permits for direct injection of ADM to POTW anaerobic digesters for co-digestion that are regulated under WDR's or NPDES permits. The proposed CalRecycle exclusion is restricted to ADM that has been prescreened, slurried, and processed/conveyed in a closed system to be co-digested with regular POTW sludge. The CalRecycle exclusion assumes that a POTW has developed Standard Operating Procedures (SOP's) for the proper handling, processing, tracking, and management of the ADM received.

If a Discharger proposes to receive hauled-in ADM for injection into its anaerobic digester for co-digestion, this provision requires the Discharger to notify the Central Valley Water Board and develop and implement SOP's for this activity prior to initiation of the hauling. The requirements of the SOP's are discussed in Section VII.C.5.d.

- d. **Sludge/ Biosolids Treatment or Discharge Specifications.** Sludge in this Order means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. part 503. This Order does not regulate offsite use or disposal of biosolids, which are regulated instead under 40 C.F.R. part 503; administered by U.S. EPA. The Sludge/Biosolids Treatment or Discharge Specifications in this Order implement the California Water Code to ensure sludge/biosolids are properly handled onsite to prevent nuisance, protect public health, and protect groundwater quality.

6. Other Special Provisions

- a. **Title 22, or Equivalent, Disinfection Requirements.** For Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order, this Order requires wastewater to be oxidized, coagulated (as needed), filtered, and adequately disinfected pursuant to DDW reclamation criteria, CCR, Title 22, division 4, chapter 3 (Title 22), or equivalent. Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW's reclamation criteria because the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation.

¹ CalRecycle has proposed to define "anaerobically digestible material" to include inedible kitchen grease as defined in Food and Agricultural Code section 19216, food material as defined in California Code of Regulations, title 14, section 17852 and vegetative food material.

7. Compliance Schedules

In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 C.F.R. section 122.44(d). There are exceptions to this general rule. The State Water Board's Resolution 2008-0025 "Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits" (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds one year, the order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.

- a. **Methylmercury for the City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility.** The effluent limitations for methylmercury for Dischargers in the Sacramento-San Joaquin Delta (i.e., City of Lodi, White Slough Water Pollution Control Facility; and City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility) are more stringent than effluent limitations previously imposed. These limitations are based on the Basin Plans' Delta Mercury Control Program that became effective on 20 October 2011. The Dischargers have complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Dischargers' applications demonstrate the need for additional time to implement actions to comply with the new limitations, as described below. Therefore, a compliance schedule for compliance with the effluent limitations for methylmercury has been maintained in this Order from previous individual Orders for the respective Dischargers.

A compliance schedule is necessary because the Dischargers must implement actions, including a Phase 1 Methylmercury Control Study and possible facility upgrades to comply with the final effluent limitations.

The Dischargers have made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream. The City of Manteca and Dutra Farms, Inc., Wastewater Quality Control Facility collected monthly monitoring for mercury and methylmercury during the term of Order R5-2009-0095 and has also developed and continues to implement a PPP for mercury, as required by Order R5-2009-0095. The City of Lodi, White Slough Water Pollution Control Facility is currently implementing a pollution prevention plan for mercury that was submitted to the Central Valley Water Board on 9 September 2010.

The compliance schedules are as short as possible. The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. Therefore, at this time it is uncertain what measures must be taken to consistently comply with the waste load allocation for methylmercury. The interim effluent limits and final compliance date may be modified at the completion of Phase 1.

Interim performance-based limitations are included in this Order. The interim limitations were determined as described in section IV.E.2, and are in effect until the

final limitations take effect. The interim numeric effluent limitations and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

VIII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for discharges of treated municipal wastewater to surface water.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD₅ and TSS reduction requirements).
2. This General Order establishes baseline influent monitoring frequencies for major and minor Dischargers, which were determined through evaluation of monitoring requirements in individual NPDES permits for Dischargers that are potentially eligible for coverage under this General Order. The Central Valley Water Board finds that these frequencies will be sufficient to characterize the influent. The Executive Officer may specify more or less frequent monitoring frequencies in the Notice of Applicability, considering the site-specific conditions of the discharge.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 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. This General Order establishes baseline effluent monitoring frequencies for major and minor Dischargers, which were determined through evaluation of monitoring requirements in individual NPDES permits for Dischargers that are potentially eligible for coverage under this General Order. The Central Valley Water Board finds that these frequencies will be sufficient to characterize the effluent and determine compliance with effluent limitations, where applicable. The Executive Officer may specify more frequent monitoring in the Notice of Applicability, considering the site-specific conditions of the discharge.
3. The Notice of Applicability will identify the specific constituents to be monitored and the associated monitoring frequencies. At a minimum, all Dischargers will be required to monitor for flow, BOD₅, pH, TSS, ammonia, dissolved oxygen, electrical conductivity, hardness, nitrate plus nitrite, temperature, total coliform organisms, and for any constituents subject to effluent limitations as identified in the Notice of Applicability.
4. Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.*" The DDW certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the federal CWA. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code § 13372, subd. (a).) The federal maximum holding time is 15 minutes for chlorine residual, dissolved oxygen, pH, and other constituents as listed in the Notice of Applicability, and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II) Due to the location of some facilities and their distance from certified laboratories, it is factually impossible for the Discharger to comply with both Water Code section 13176 and the federal requirements for constituents with short holding times. In this situation Water Code section 13176(a) is inapplicable.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity. The frequency of testing shall be specified in the Notice of Applicability from the Executive Officer.
2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plans' narrative toxicity objective or MMEL, if required. The frequency of testing shall be specified in the Notice of Applicability from the Executive Officer.

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. This General Order establishes baseline receiving water monitoring frequencies for major and minor Dischargers, which were determined through evaluation of monitoring requirements in individual NPDES permits for Dischargers that are potentially eligible for coverage under this General Order. The Central Valley Water Board finds that these frequencies will be sufficient to characterize the receiving water and determine compliance with receiving water limitations, where applicable. The Executive Officer may specify more frequent monitoring in the Notice of Applicability, considering the site-specific conditions of the discharge.

The Calaveras County Water District, Copper Cove Wastewater Reclamation Facility is not required to monitor Littlejohns Creek due to the de minimis amount of reclaimed water expected in overflows from the wetlands to Littlejohns Creek and because the effluent limitations must be met at the point of discharge to Pond NC-2D. The Nevada County Sanitation District No. 1, Cascade Shores Wastewater Treatment Plant is not required to monitor Gas Canyon Creek because access to Gas Canyon Creek is limited and unsafe most of the year.

- b. **Delta Regional Monitoring Program.** The Central Valley Water Board requires individual dischargers and discharger groups to conduct monitoring of Delta waters and Delta tributary waters in the vicinity of their discharge, known as ambient (or receiving) water quality monitoring. This monitoring provides information on the impacts of waste discharges on Delta waters, and on the extant condition of the Delta waters. However, the equivalent funds spent on current monitoring efforts could be used more efficiently and productively, and provide a better understanding of geographic and temporal distributions of contaminants and physical conditions in the Delta, and of other Delta water quality issues, if those funds were used for a coordinated ambient monitoring effort, rather than continue to be used in individual,

uncoordinated ambient water quality monitoring programs. The Delta Regional Monitoring Program will provide data to better inform management and policy decisions regarding the Delta.

This General Order allows Dischargers in and outside the Delta in the Delta to elect to participate in the Delta Regional Monitoring Program in lieu of conducting all or part of the individual receiving water monitoring required in the Monitoring and Reporting Program. If the Discharger elects to cease individual receiving water monitoring and participate in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative to the Executive Officer informing the Central Valley Water Board that the Discharger will participate in the Delta Regional Monitoring Program and the date on which individual receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, will cease or be modified. Approval by the Executive Officer is required, and contingent on Delta Regional Monitoring Program Steering Committee action on the forthcoming Regional Monitoring Program monitoring plan.

Delta Regional Monitoring Program data are not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Permit. Delta Regional Monitoring Program monitoring stations are established generally as “integrator sites” to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent, but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring Program monitoring data may be used to help establish background receiving water quality for an RPA in an NPDES permit after evaluation of the applicability of the data for that purpose. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger’s discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

If the Discharger begins to participate in the Delta Regional Monitoring Program in lieu of individual receiving water monitoring, the Discharger shall continue to participate in the Delta Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta Regional Monitoring Program will cease and individual monitoring is reinstated. Receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. Participation in the Delta Regional Monitoring Program by a Discharger shall consist of providing funds and/or in-kind services to the Delta Regional Monitoring Program at least equivalent to discontinued individual monitoring and study efforts. If a Discharger or discharger group fails to maintain adequate participation in the Delta Regional Monitoring Program, as determined through criteria to be developed by the Delta Regional Monitoring Program Steering Committee, the Steering Committee will recommend to the Central Valley Water

Board that an individual monitoring program be reinstated for that discharger or discharger group.

If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the receiving water portion of the required Characterization Monitoring need not be conducted by the Discharger. Instead, data from the Delta Regional Monitoring Program will be utilized to characterize the receiving water in the permit renewal. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Monitoring. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Historic receiving water monitoring data taken by the Discharger and from other sources may also be evaluated to determine whether or not that data are representative of current receiving water conditions. If found to be representative of current conditions, then that historic data may be used in characterizing receiving water quality for the purposes of Reasonable Potential analysis.

2. Groundwater Monitoring – Not Applicable

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring for compliance with 40 C.F.R. part 503 regulations is not included in this Order since it is a program administered by U.S. EPA. The webpage below provides information on compliance with U.S. EPA's part 503 biosolids program:

<https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws>

2. Water Supply Monitoring

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

3. Filtration System Monitoring

Filtration system monitoring for turbidity is required for Dischargers of tertiary treated wastewater that meet the eligibility criteria in section I.B.4 of this General Order to determine compliance with the filtration system operating specifications in section VII.C.4.a of this General Order.

4. UV Disinfection System Monitoring

UV system monitoring and reporting are required for Dischargers that utilize UV disinfection to ensure that the UV system is operated to adequately inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by DDW and the NWRI Guidelines.

5. Pond Monitoring

Pond monitoring is required to ensure proper operation of treatment and storage ponds.

6. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program

Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires major permittees under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There

are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S. EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from their own laboratories or their contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall submit annually the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

IX. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for discharges of treated municipal wastewater to surface waters of the United States. As a step in the WDR's adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR's adoption process. After adoption of these WDR's, a copy of each Notice of Applicability will be made available prior to issuance by the Executive Officer, to the Discharger, U.S. EPA, and interested persons.

A. Notification of Interested Persons

The Central Valley Water Board notified municipal wastewater Dischargers with existing individual NPDES permits, and interested agencies, and persons of the Central Valley Water Board's intent to prescribe general WDR's for municipal wastewater Dischargers that meet objectives/criteria at the point of discharge to surface water and provided an opportunity to submit written comments and recommendations. Notification was provided through specific mailings on 5 July 2017, distribution through the Central Valley Water Board Listserve Email System, and through publication on 8 July 2017 in major newspapers for the following communities: Fresno, Redding and Sacramento.

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:
http://www.waterboards.ca.gov/centralvalley/board_info/meetings/

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Officer at the Central Valley Water Board at the address on the cover page of this Order, or via email to RB5S-NPDES-Comments@waterboards.ca.gov.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due by 5:00 p.m. on 4 August 2017.

C. Public Hearing

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: 11 August 2017
Time: 9:00 a.m.
Location: Regional Water Quality Control Board, Central Valley Region

11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDR's. The petition must be received by the State Water Board at the following address within 30 calendar days of the Central Valley Water Board's action:

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

For instructions on how to file a petition for review, see
http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Information and Copying

The supporting documents and comments received are on file and may be inspected at the Regional Water Quality Control Board 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 Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the general WDR's and NPDES permit should contact the Central Valley Water Board, reference the general WDR's and NPDES permit, and provide a name, address, and phone number.

G. Additional Information

For additional information or questions regarding this General Order, please find the appropriate contact for your county from the list under "NPDES Permitting Contacts". You will find the contact list on the Central Valley Water Board's website by searching alphabetically for "Surface Water Discharges (NPDES)" at the following web address:
http://www.waterboards.ca.gov/centralvalley/about_us/phone_list/#Ss

ATTACHMENT G – CALCULATION OF WQBEL'S

The Central Valley Water Board calculated water quality-based effluent limitations (WQBEL's) as described in section V.C.4 of the Fact Sheet (Attachment F). This General Order includes WQBEL's calculated for various coefficients of variation (CV's) ranging from 0.1 to 4.0; however, the summary tables below only show calculations for a CV of 0.6. In the summary tables below, a default translator of 1 was used for calculating the example effluent limitations for metals. For parameters with both human health and aquatic life objectives/criteria, the final effluent limitations established in this General Order are based on the lower of the effluent limitations based on the aquatic life objectives/criteria and human health objectives/criteria.

Human Health WQBEL's Calculations – MUN USE								
Parameter	Units	Criteria	MDEL/AMEL Multiplier	AMEL Multiplier	AWEL/AMEL Multiplier	AMEL	AWEL	MDEL
Priority Pollutants								
Arsenic, Total Recoverable	µg/L	10	2.01	1.55	1.73	10	--	20
Bis (2-ethylhexyl) phthalate	µg/L	1.8	2.01	1.55	1.73	1.8	--	3.6
Chlorodibromomethane	µg/L	0.41	2.01	1.55	1.73	0.41	--	0.82
Copper, Total Recoverable	µg/L	1,300	2.01	1.55	1.73	1,300	--	2,600
Cyanide, Total (as CN)	µg/L	150	2.01	1.55	1.73	150	--	300
Dichlorobromomethane	µg/L	0.56	2.01	1.55	1.73	0.56	--	1.1
Lead, Total Recoverable	µg/L	15	2.01	1.55	1.73	15	--	30
Tetrachloroethylene	µg/L	0.8	2.01	1.55	1.73	0.80	--	1.6
Zinc, Total Recoverable	µg/L	5,000	2.01	1.55	1.73	5,000	--	10,000
Non-Conventional Pollutants								
Aluminum, Total Recoverable	µg/L	200	2.01	1.55	1.73	310 ¹	620 ¹	--
Fluoride, Total	mg/L	2.0	2.01	1.55	1.73	3.1 ¹	6.2 ¹	--
Foaming Agents (MBAS)	mg/L	0.5	2.01	1.55	1.73	0.78 ¹	1.6 ¹	--
Manganese, Total Recoverable	µg/L	50	2.01	1.55	1.73	78 ¹	160 ¹	--
Nitrate Plus Nitrite (as N)	mg/L	10	2.01	1.55	1.73	10	17 ²	--
Nitrite, Nitrogen (as N)	mg/L	1	2.01	1.55	1.73	1	1.7 ²	--

¹ Calculated by setting the LTA equal to the Primary or Secondary MCL and using the AMEL multiplier to set the AMEL. The AWEL was calculated from the AMEL using the MDEL/AMEL multiplier. (Table 2 of the SIP).

² Calculated by multiplying the AMEL by the AWEL/AMEL multiplier.

Human Health QBEL's Calculations – NO MUN USE								
Parameter	Units	Criteria	MDEL/AMEL Multiplier	AMEL Multiplier	AWEL/AMEL Multiplier	AMEL	AWEL	MDEL
Priority Pollutants								
Bis (2-ethylhexyl) phthalate	µg/L	5.9	2.01	1.55	1.73	5.9	--	12
Chlorodibromomethane	µg/L	34	2.01	1.55	1.73	34	--	68
Cyanide, Total (as CN)	µg/L	220,000	2.01	1.55	1.73	220,000	--	440,000
Dichlorobromomethane	µg/L	46	2.01	1.55	1.73	46	--	92
Tetrachloroethylene	µg/L	8.85	2.01	1.55	1.73	8.9	--	18
Non-Conventional Pollutants								
Manganese, Total Recoverable	µg/L	100	2.01	1.55	1.73	160 ¹	310 ¹	--

¹ Calculated by setting the LTA equal to the Primary or Secondary MCL and using the AMEL multiplier to set the AMEL. The AWEL was calculated from the AMEL using the MDEL/AMEL multiplier. (Table 2 of the SIP).

Aquatic Life QBEL's Calculations													
Parameter	Units	Criteria Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations		
		CMC	CCC	ECA Multiplier _{acute}	LTA _{acute}	ECA Multiplier _{chronic}	LTA _{chronic}	AMEL Multiplier ₉₅	AWEL Multiplier	MDEL Multiplier ₉₉	AMEL ¹	AWEL ²	MDEL ³
Priority Pollutants													
Arsenic, Total Recoverable	µg/L	340	150	0.32	110	0.53	79	1.55	2.68	3.11	120	--	250
Copper, Total Recoverable	µg/L	3.1 ⁴	2.4 ⁴	0.32	0.98	0.53	1.2	1.55	2.68	3.11	1.5	--	3.1
Cyanide, Total (as CN)	µg/L	22	5.2	0.32	7.1	0.53	2.7	1.55	2.68	3.11	4.3	--	8.5
Lead, Total Recoverable	µg/L	11 ⁴	0.41 ⁴	0.32	3.4	0.53	0.22	1.55	2.68	3.11	0.34	--	0.67
Zinc, Total Recoverable	µg/L	31 ⁴	31 ⁴	0.32	9.8	0.53	16	1.55	2.68	3.11	15	--	31

Aquatic Life QBEL's Calculations													
Parameter	Units	Criteria Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations		
		CMC	CCC	ECA Multiplier _{acute}	LTA _{acute}	ECA Multiplier _{chronic}	LTA _{chronic}	AMEL Multiplier ₉₅	AWEL Multiplier	MDEL Multiplier ₉₉	AMEL ¹	AWEL ²	MDEL ³
Non-Conventional Pollutants													
Aluminum, Total Recoverable	µg/L	750	87	0.32	240	0.53	46	1.55	2.68	3.11	71	120	--
Ammonia Nitrogen, Total (as N)	mg/L	5.62 ⁵	0.5 ⁶	0.32	1.8	0.78	0.39	1.2	2.68	3.11	0.46	1.0	--

¹ Average Monthly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 95th percentile occurrence probability.

² Average Weekly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 98th percentile occurrence probability.

³ Maximum Daily Effluent Limitations are calculated according to Section 1.4 of the SIP using a 99th percentile occurrence probability.

⁴ CMC and CCC will be calculated based on the receiving water hardness. Example CMC and CCC calculated based on a hardness of 20 mg/L CaCO₃.

⁵ CMC will be calculated based on the maximum permitted pH or on the maximum observed effluent pH, whichever is lower. Example CMC calculated based on a pH of 8.0.

⁶ CCC will be calculated based on the downstream receiving water pH and temperature. Example QBEL calculations shown for a CCC of 0.5 mg/L.