CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

11020 Sun Center Drive, #200 Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • Fax (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

ORDER R5-2016-XXXX
NPDES NO. CA0085146

WASTE DISCHARGE REQUIREMENTS FOR THE BEAR VALLEY WATER DISTRICT BEAR VALLEY WASTEWATER TREATMENT FACILITY ALPINE COUNTY

The following Discharger is subject to waste discharge requirements (WDR's) set forth in this Order:

Table 1. Discharger Information

Discharger	Bear Valley Water District
Name of Facility	Bear Valley Wastewater Treatment Facility
Facility Address	441 Creekside Drive
	Bear Valley, CA 95223
	Alpine County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Municipal Wastewater	38° 27' 25"	120° 02' 13"	Bloods Creek

Table 3. Administrative Information

This Order was adopted on:	**<Adoption Date>**
This Order shall become effective on:	**<Effective Date>**
This Order shall expire on:	**<Expiration Date>**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**[Choose: 180 days prior to the Order expiration date OR <insert date>]**
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:	Minor

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 **[DATE]**.

_____
PAMELA C. CREEDON, Executive Officer

CONTENTS

I. Facility Information 3
II. Findings 3
III. Discharge Prohibitions 4
IV. Effluent Limitations and Discharge Specifications 4
A. Effluent Limitations – Discharge Point 001 4
1. Final Effluent Limitations – Discharge Point 001 4
2. Interim Effluent Limitations – Not Applicable 5
B. Land Discharge Specifications – Not Applicable 5
C. Recycling Specifications – Not Applicable 5
V. Receiving Water Limitations 6
A. Surface Water Limitations 6
B. Groundwater Limitations – Not Applicable 7
VI. Provisions 8
A. Standard Provisions 8
B. Monitoring and Reporting Program (MRP) Requirements 11
C. Special Provisions 11
1. Reopener Provisions 11
2. Special Studies, Technical Reports and Additional Monitoring Requirements 12
3. Best Management Practices and Pollution Prevention 14
4. Construction, Operation and Maintenance Specifications 14
5. Special Provisions for Municipal Facilities (POTW's Only) 14
6. Other Special Provisions 14
7. Compliance Schedules – Not Applicable 14
VII. Compliance Determination 15

TABLES

Table 1. Discharger Information 1
Table 2. Discharge Location 1
Table 3. Administrative Information 1
Table 4. Effluent Limitations 5

ATTACHMENTS

Attachment A – Definitions A-1
Attachment B – Map B-1
Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1
Attachment E – Monitoring and Reporting Program E-1
Attachment F – Fact Sheet F-1
Attachment G – Summary Of Reasonable Potential Analysis G-1
Attachment H – Calculation of WQBEL'S H-1

I. FACILITY INFORMATION

Information describing the Bear Valley Water District, Bear Valley Wastewater Treatment Facility (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. 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 point source discharges from this Facility to surface waters.

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

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

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 establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

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*."

The Discharger owns and operates the Facility 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. Notification of Interested Parties. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

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

THEREFORE, IT IS HEREBY ORDERED that Waste Discharge Requirements Order R5-2011-0053 and Time Schedule Order R5-2011-0054 are rescinded upon the effective date of this Order except for enforcement purposes, and, 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. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater from the Facility, as the Facility is specifically described in the Fact Sheet in section II.B, in a manner different from that described in this Order is prohibited.

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

C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the 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. Discharge to Bloods Creek is prohibited between 1 July and 31 December.

F. Discharge to Bloods Creek is prohibited unless a minimum dilution ratio of 20:1 as a daily average (downstream receiving water flow to effluent flow) is present.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program, Attachment E:

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

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	1.0	--	2.5	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	40	60	--	--
	lbs/day[1]	630	830	1,250	--	--
pH	standard units	--	--	--	6.0	9.0
Total Suspended Solids	mg/L	30	40	60	--	--
	lbs/day[1]	630	830	1,250	--	--
Priority Pollutants						
Copper, Total Recoverable	µg/L	8.4	--	17	--	--
Lead, Total Recoverable	µg/L	1.8	--	3.7	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	340	590	--	--	--
Ammonia Nitrogen, Total (as N)	mg/L	13	23	--	--	--
	lbs/day[1]	270	480	--	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	17	--	--	--
Settleable Solids	ml/L	0.1	0.2	--	--	--

[1] Mass limits are based on a design flow of 2.5 MGD.

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

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

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

d. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed:

i. 0.011 mg/L, as a 4-day average; and
ii. 0.019 mg/L, as a 1-hour average.

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

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

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable (WDR Order 5-01-208 regulates discharges to land)

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Bloods Creek:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **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.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
9. **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;
   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board (State Water Board) Resolution No. 68-16 and 40 C.F.R. 131.12.);
   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
   f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15; nor
   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**
    a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
    b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.
11. **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.
12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
14. **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.
15. **Temperature.** 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.
16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
17. **Turbidity:**
    a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
    b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
    c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
    d. Shall not increase more than 10 NTU where natural turbidity is between 50 and100 NTUs; nor
    e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Not Applicable (WDR Order 5-01-208 regulates discharges to land)

VI. PROVISIONS

A. Standard Provisions

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

2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this 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 Order may be terminated or modified for cause, including, but not limited to:

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

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

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

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

      The causes for modification include:

      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 Order, the Central Valley Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

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

   d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections

301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

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

ii. Controls any pollutant limited in the Order.

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

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

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

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

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

i. Safeguard to electric power failure:

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

ii. Upon written request by the 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 Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this 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 VI.A.2.i of this Order.

The technical report shall:

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

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

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

The 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 publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the 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.

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

m. The 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. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a 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 Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

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

p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

q. In the event 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 Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 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

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E.

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. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not

limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

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

d. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper and lead. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

e. **Dilution/Mixing Zone Study.** This Order requires the Discharger to conduct an updated mixing zone study at receiving water flows that are representative of potential discharge conditions and at a dilution ratio consistent with Discharge Prohibitions III.F, and to re-evaluate the pH mixing in the receiving water considering alkalinity. Based on the results of the updated mixing zone study, the Central Valley Water Board may reopen this Order to include revised effluent limitations.

f. **Seasonal Discharge Prohibition.** This Order includes Discharge Prohibition III.E prohibiting discharges to Bloods Creek from 1 July to 31 December. The Discharger requested elimination or relaxation of this prohibition to facilitate more intelligent discharge planning, but not more frequent discharges. An antidegradation analysis demonstrating the relaxation of the seasonal discharge prohibition is in compliance with state and federal antidegradation requirements is needed before modifying the seasonal discharge prohibition. If the Discharger submits an adequate antidegradation analysis, the Central Valley Water Board may reopen this Order to reconsider the seasonal discharge prohibition.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Toxicity Reduction Evaluation (TRE) Requirements.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in MRP 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 numeric toxicity monitoring trigger during accelerated monitoring established in this Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE 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. TRE's 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. This

Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

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

ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is >1 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 begin accelerated monitoring and initiate a TRE. The Executive Officer may authorize up to a numeric toxicity monitoring trigger of >4 TUc, if the Discharger provides adequate justification as described in the Fact Sheet (Attachment F, Section VI.B.2.a).

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

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

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

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

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

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

(3) A schedule for these actions.

Within sixty (60) days of notification by the laboratory of the test results, 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[1].

b. **Dilution/Mixing Zone Study.** The Discharger shall perform an updated dilution/mixing zone study, using a dye tracer at a dilution ratio of 20:1 and receiving water flows that are representative of potential discharge conditions. The study shall also evaluate pH mixing/dilution in the receiving water considering the alkalinity of the discharge and receiving water. **By 1 February 2017**, the Discharger shall submit a workplan and schedule for completing the study for approval by the Executive Officer. A final report summarizing the study results and compliance with section 1.4.2.2 of the SIP shall be submitted by **1 September 2019**.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement a salinity evaluation and minimization plan to identify and address sources of salinity discharged from the Facility. The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge, due **180 days prior to the permit expiration date**.

4. Construction, Operation and Maintenance Specifications (see WDR Order 5-01-208)

i.

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

a. **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. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.

6. Other Special Provisions

a. **Notification of Discharge.** The Discharger shall notify the Central Valley Water Board, the Stockton East Water District, and the State Water Board, Division of Drinking Water (DDW), District 10 Stockton Office by telephone at least 24 hours prior to initiating a discharge to Bloods Creek.

7. Compliance Schedules – Not Applicable

[1] See the Fact Sheet (Attachment F, section VII.B.2.a.) for a list of U.S. EPA guidance documents that must be considered in development of the TRE Workplan.

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Sections IV.A.1.a and IV.A.1.b). Compliance with the final effluent limitations for BOD_5 and TSS required in Limitations and Discharge Requirements section IV.A.1.a shall be ascertained by grab samples. Compliance with effluent limitations required in Limitations and Discharge Requirements section IV.A.1.b for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected at monitoring location EFF-001 over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at monitoring location INF-001 at approximately the same times during the same period.

B. Aluminum Effluent Limitations (Section IV.A.1.a). 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 Coliform Organisms Effluent Limitations (Section IV.A.1.e). For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For 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 a most probable number (MPN) of 23 per 100 milliliters, the Discharger will be considered out of compliance.

D. Total Residual Chlorine Effluent Limitations (Section IV.A.1.d). 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).

E. 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:

c. 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.

d. 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 <u>not</u> be deemed out of compliance.

F. Dissolved Oxygen Receiving Water Limitation (Section V.A.5.a-c). Weekly 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 Order. Weekly receiving water monitoring data, measured at Monitoring Locations RSW-001 and RSW-002, will be used to determine compliance with part “c” of the dissolved oxygen receiving water limitation to ensure the discharge does not cause the dissolved oxygen concentrations in Bloods Creek to be reduced below 7.0 mg/L 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 parts “a” and “b”.

G. Average Monthly Effluent Limitations (Section IV.A.1). For average monthly effluent limitations, including average monthly percent removal limitations for BOD_5 and TSS, if only one sample is collected during the time period associated with the effluent limitation, the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.

H. Dilution Ratio Prohibition (Section III.F). Discharge Prohibition III.F prohibits a surface water discharge to Bloods Creek unless there is at least a 20:1 dilution ratio as a daily average (Bloods Creek flow-to-Effluent flow). Compliance with the daily average dilution ratio shall be determined based on the ratio of the daily average Bloods Creek flow downstream of the discharge and the daily average effluent flow measured at monitoring location EFF-001.

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.

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.

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.

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 is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of

measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 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.

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

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

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

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The 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.

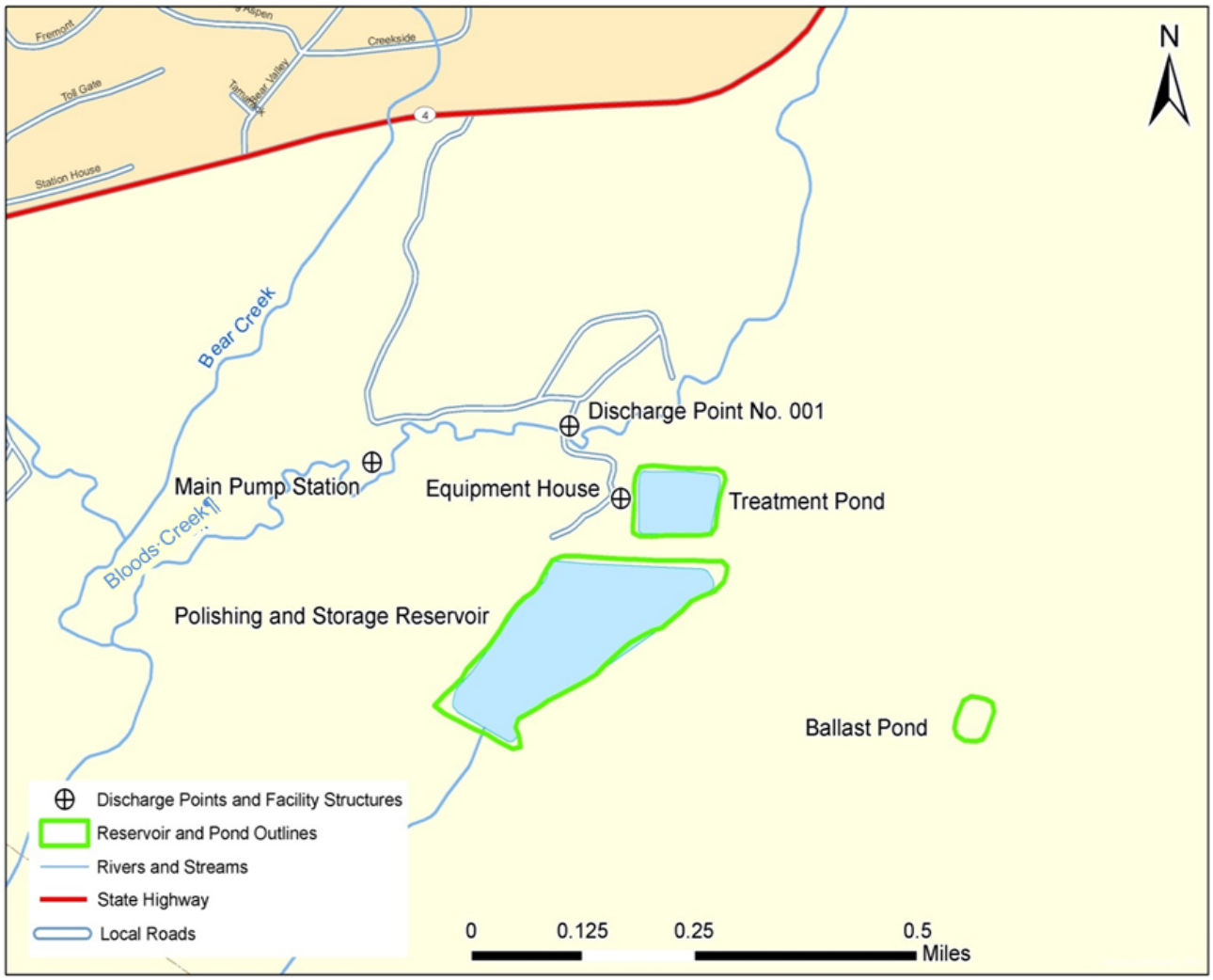
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

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

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.)

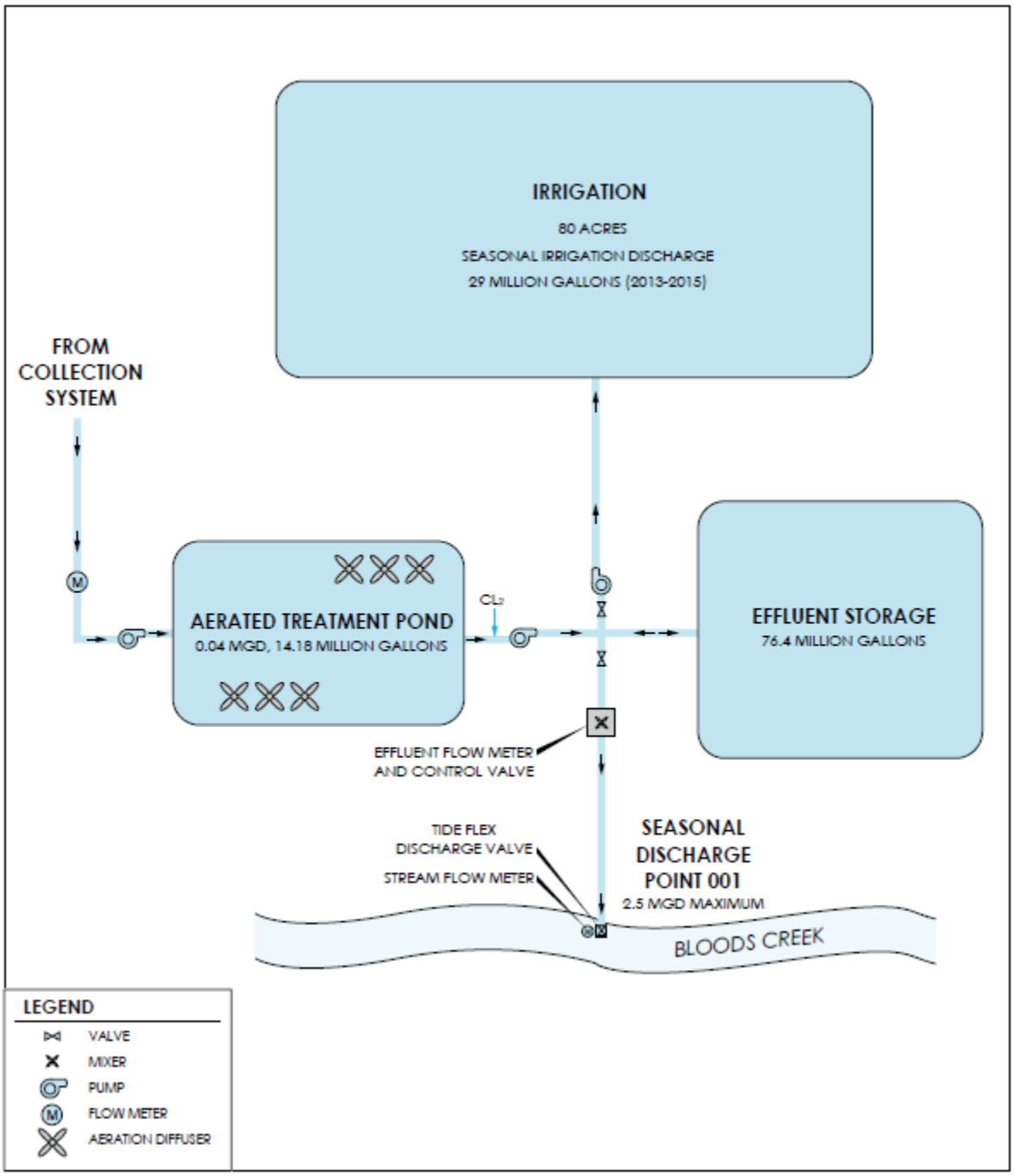
ATTACHMENT B – MAP



SITE LOCATION MAP

BEAR VALLEY WATER DISTRICT
BEAR VALLEY WASTEWATER TREATMENT FACILITY
ALPINE COUNTY

ATTACHMENT C – FLOW SCHEMATIC



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 and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 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 or sludge use or disposal 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).)

C. Transfers

This Order is 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 Order 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 results 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. In the case of pollutants for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants. (40 C.F.R. § 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, 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 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 that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Central Valley Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

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. This notification applies to pollutants that are not subject to effluent limitations in this Order. (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. (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).)

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

Contents

I. General Monitoring Provisions E-2
II. Monitoring Locations E-3
III. Influent Monitoring Requirements E-3
  A. Monitoring Location INF-001 ..... E-3
IV. Effluent Monitoring Requirements E-4
  A. Monitoring Location EFF-001 ..... E-4
V. Whole Effluent Toxicity Testing Requirements E-5
VI. Storage/Polishing Reservoir Monitoring Requirements E-8
  A. Monitoring Locations PND-001 and EFF-001 ..... E-8
VII. Receiving Water Monitoring Requirements E-10
  A. Monitoring Location RSW-001 and RSW-002 ..... E-10
VIII. Other Monitoring Requirements E-10
  A. Municipal Water Supply E-10
  B. Effluent and Receiving Water Characterization E-11
IX. Reporting Requirements E-15
  A. General Monitoring and Reporting Requirements E-15
  B. Self-Monitoring Reports (SMR's) E-15
  C. Discharge Monitoring Reports (DMR's) E-18
  D. Other Reports E-18

Tables

Table E-1. Monitoring Station Locations E-3
Table E-2. Influent Monitoring E-3
Table E-3. Effluent Monitoring E-4
Table E-4. Chronic Toxicity Testing Dilution Series E-7
Table E-5. Storage/Polishing Reservoir Monitoring E-8
Table E-6. Receiving Water Monitoring Requirements E-10
Table E-7. Municipal Water Supply Monitoring Requirements E-11
Table E-8. Effluent and Receiving Water Characterization Monitoring E-11
Table E-9. Monitoring Periods and Reporting Schedule E-16
Table E-10. Reporting Requirements for Special Provisions Reports E-19

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 (DO), 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, DO, 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.

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.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	Upstream from the last connection through which wastes can be admitted into the treatment pond.
001	EFF-001	Downstream from the last connection through which wastes can be admitted into the outfall from the storage/polishing reservoir.[1]
--	PND-001	Storage/polishing reservoir.
--	RSW-001	In Bloods Creek, 50 feet upstream of the point of discharge.
--	RSW-002	In Bloods Creek, 200 feet downstream of the point of discharge.
--	SPL-001	Location where a representative sample of the municipal supply water can be obtained.

[1] Samples shall be taken at the sample tap on the effluent outfall pipeline.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous[3]	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	1/month[3]	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/month[3]	[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] Monitoring only required from 1 January through 30 June.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Dilution Ratio	--	Calculated [8]	1/Day [9]	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	Grab	2/Week	[1]
	lbs/day	Calculate	2/Week	--
pH	standard units	Meter	Continuous[2]	[1]
Total Suspended Solids	mg/L	Grab	2/Week	[1]
	lbs/day	Calculate	2/Week	--
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month	[1,3]
Lead, Total Recoverable	µg/L	Grab	1/Month	[1,3]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	Grab	1/Month	[1]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	2/Week[4]	[1]
	lbs/day	Calculate	2/Week	--
Chlorine, Total Residual	mg/L	Meter	Continuous	[1,5]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/Week	[1]
Iron, Total Recoverable	µg/L	Grab	1/Month	[1]
Manganese, Total Recoverable	µg/L	Grab	1/Month	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month[6]	[1]
Nitrate Plus Nitrite (as N)	mg/L	Grab	1/Month	[1]
Settleable Solids	ml/L	Grab	2/Week	[1]
Temperature	°C	Grab	2/Week[2,7]	[1]
Total Coliform Organisms	MPN/100 mL	Grab	2/Week	[1]
Turbidity	NTU	Grab	2/Week	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

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

[3] 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, Table E-9).

[4] Concurrent with whole effluent toxicity monitoring.

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

[6] Hardness samples shall be collected concurrently with metals samples.

[7] 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.

[8] Dilution ratio calculated as the average daily Bloods Creek flow downstream of the discharge divided by the average daily effluent flow.

[9] Monitoring only required when discharging to Bloods Creek.

2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record for all of the constituents listed in Table E-3 above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. *Monitoring Frequency* – When discharging to Bloods Creek, the Discharger shall perform acute toxicity testing annually, concurrent with effluent ammonia sampling. Acute toxicity testing is not required if a discharge to Bloods Creek does not occur during the discharge season.

2. *Sample Types* – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

3. *Test Species* – Test species shall be rainbow trout (*Oncorhynchus mykiss*).

4. *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.

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

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

1. *Monitoring Frequency –* When discharging to Bloods Creek, the Discharger shall perform three species chronic toxicity testing once during the first discharge to Bloods Creek that occurs after the effective date of this Order. If a discharge to Bloods Creek does not occur during the term of this Order, the Discharger is not required to conduct chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, 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:

   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. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.

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

7. *Dilutions* – For routine and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed at the instream waste concentration[1] and one control. For Toxicity Reduction Evaluation (TRE) monitoring, 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 TRE Action Plan. A receiving water control shall be used as the diluent.

[1] The instream waste concentration (%) is 100 divided by the numeric toxicity trigger established in Limitations and Discharge Requirements Section VI.C.a.ii. For example, at a numeric toxicity trigger of >1 TUc, the instream waste concentration is 100% effluent. In the event the Executive Officer authorizes a numeric toxicity trigger of >4 TUc the instream waste concentration would be 25% effluent.

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions[1] (%)					Control
	100	75	50	25	12.5	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

[1] Receiving water control shall be used as the diluent.

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

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

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

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

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

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the monthly SMR, and shall contain, at minimum:

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

   b. The statistical methods used to calculate endpoints;

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

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

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

   Additionally, the monthly SMR's shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly SMR and reported as percent survival.

3. **TRE Reporting.** Reports for TRE's 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).** The Discharger must provide the following information for QA purposes:

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

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

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

VI. STORAGE/POLISHING RESERVOIR MONITORING REQUIREMENTS

A. Monitoring Locations PND-001 and EFF-001

1. From 1 December through 30 June, the Discharger shall monitor the storage/polishing reservoir at Monitoring Location PND-001 as follows. Monitoring is only required under certain circumstances (see table footnotes regarding the minimum sampling frequencies).

Table E-5. Storage/Polishing Reservoir Monitoring (PND-001)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Storage/Polishing Reservoir Volume Remaining	million gallons	Estimate	1/Day[1]	--
Storage/Polishing Reservoir Water Surface Elevation	feet	Measurement	1/Day[1]	--
Storage/Polishing Reservoir Freeboard	feet	Measurement	1/Day[1]	--

[1] Monitoring is required daily during discharge events to Bloods Creek and weekly when not discharging to Bloods Creek.

2. The Discharger shall monitor the storage/polishing reservoir at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding ML. Monitoring is only required under certain circumstances (see table footnotes regarding the minimum sampling frequencies).

Table E-6. Storage/Polishing Reservoir Monitoring (EFF-001)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	Grab	2/Year[1]	[2]
pH	standard units	Grab	2/Year[1,3]	[2]
Total Suspended Solids	mg/L	Grab	2/Year[1]	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Year[4]	[2,5]
Lead, Total Recoverable	µg/L	Grab	1/Year[4]	[2,5]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	Grab	1/Year[4]	[2,6]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Year[4]	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/Year[1]	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	2/Year[1]	[2]
Iron, Total Recoverable	µg/L	Grab	1/Year[4]	[2]
Manganese, Total Recoverable	µg/L	Grab	1/Year[4]	[2]
Nitrate Plus Nitrite (as N)	mg/L	Grab	1/Year[4]	[2]
Settleable Solids	ml/L	Grab	2/Year[1]	[2]
Temperature	°C	Grab	2/Year[1,3]	[2]
Total Coliform Organisms	MPN/100 mL	Grab	2/Year[1]	[2]
Turbidity	NTU	Grab	2/Year[1]	[2]

[1] Monitoring shall occur once during the month of May and once during the month of June each discharge season at monitoring location EFF-001 with the effluent returning to the storage pond (i.e., no discharge to Bloods Creek is occurring). If a discharge to Bloods Creek occurs during the discharge season and the Discharger monitored the effluent discharge for this constituent, the monitoring in Table E-6 is not required for this constituent. Analytical data collected when a discharge to Bloods Creek is not occurring shall not be used for determining compliance with effluent limitations.

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

[4] Monitoring shall occur once between 1 May and 30 June each discharge season at monitoring location EFF-001 with the effluent returning to the storage pond (i.e., no discharge to Bloods Creek is occurring). If a discharge to Bloods Creek occurs during the discharge season and the Discharger monitored the effluent discharge for this constituent, the monitoring in Table E-6 is not required for this constituent. Analytical data collected when a discharge to Bloods Creek is not occurring shall not be used for determining compliance with effluent limitations.

[5] 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, Table E-9).

[6] The Discharger may monitoring for aluminum 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.

VII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor Bloods Creek at Monitoring Locations RSW-001 and RSW-002, when discharging to Bloods Creek, as follows:

Table E-7. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous[1]	--
Conventional Pollutants				
pH	standard units	Grab	1/Week[2,3]	[4,5]
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab	1/Week[2]	[4,5]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week[2]	[4,5]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month[2,6]	[4]
Temperature	°C	Grab	1/Week[2,3]	[4,5]
Turbidity	NTU	Grab	1/Week[2]	[4,5]

[1] Monitoring only required upstream of the discharge.

[2] In addition to the monitoring required during discharge events, monitoring for dissolved oxygen, electrical conductivity, pH, temperature, turbidity, and hardness shall be conducted once during the month of May and once during the month of June each discharge season, regardless if a discharge is occurring to Bloods Creek. If monitoring occurs during May and/or June for these constituents during discharge events, this additional monitoring is not required for the month(s) that monitoring occurred. If an effluent discharge is not occurring at the time of sampling, the analytical data shall not be used for determining compliance with receiving water limitations.

[3] pH and temperature shall be recorded at the time of ammonia sample collection.

[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] 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.

[6] Hardness samples shall be collected concurrently with metals (copper, lead, and aluminum) samples.

VIII. OTHER MONITORING REQUIREMENTS

A. Municipal Water Supply

1. **Monitoring Location SPL-001**

   a. Regardless of whether a discharge to Bloods Creek occurs during a calendar year, the Discharger shall monitor the municipal water supply at Monitoring Location SPL-001 as follows:

Table E-8. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C[1]	µmhos/cm	Grab	1/Year[2]	[3]

[1] If the water supply is from more than one source, the electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.
[2] Municipal water supply monitoring shall occur once per year, even if there is no discharge to Bloods Creek.
[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.

B. Effluent and Receiving Water Characterization

1. **Monitoring Frequency.** Samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) once during the first discharge to Bloods Creek that occurs after the effective date of this Order, and analyzed for the constituents listed in Table E-9, below. If no discharge occurs during the permit term, samples shall be taken at Monitoring Location PND-001 and RSW-001 during conditions under which a discharge is most likely to occur (i.e., during snowmelt) in May or June of the fourth year of the permit term (i.e., in May or June 2020). The results of such monitoring shall be submitted to the Central Valley Water Board. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

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

3. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-9, below.

Table E-9. 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
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	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Tetrachloroethene	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	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	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	µg/L	Grab	--
Xylenes	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
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
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[3]	µg/L	Grab	--
Antimony	µg/L	Grab	5
Arsenic	µg/L	Grab	10
Asbestos	MFL	Grab	--
Barium	µg/L	Grab	--
Beryllium	µg/L	Grab	2
Cadmium	µg/L	Grab	0.5
Chromium (Total)	µg/L	Grab	50
Chromium (VI)	µg/L	Grab	10
Copper[3]	µg/L	Grab	2
Cyanide	µg/L	Grab	5
Fluoride	µg/L	Grab	--
Iron[3]	µg/L	Grab	--
Lead[3]	µg/L	Grab	0.5
Mercury	µg/L	Grab	0.5
Manganese[3]	µg/L	Grab	--
Molybdenum	µg/L	Grab	--
Nickel	µg/L	Grab	5
Selenium	µg/L	Grab	5
Silver	µg/L	Grab	0.25
Thallium	µg/L	Grab	1
Tributyltin	µg/L	Grab	--
Zinc	µg/L	Grab	20
4,4'-DDD	µg/L	Grab	0.05
4,4'-DDE	µg/L	Grab	0.05
4,4'-DDT	µg/L	Grab	0.01
alpha-Endosulfan	µg/L	Grab	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	Grab	0.01
Alachlor	µg/L	Grab	

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Aldrin	µg/L	Grab	0.005
beta-Endosulfan	µg/L	Grab	0.01
beta-Hexachlorocyclohexane	µg/L	Grab	0.005
Chlordane	µg/L	Grab	0.1
delta-Hexachlorocyclohexane	µg/L	Grab	0.005
Dieldrin	µg/L	Grab	0.01
Endosulfan sulfate	µg/L	Grab	0.01
Endrin	µg/L	Grab	0.01
Endrin Aldehyde	µg/L	Grab	0.01
Heptachlor	µg/L	Grab	0.01
Heptachlor Epoxide	µg/L	Grab	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	Grab	0.5
PCB-1016	µg/L	Grab	0.5
PCB-1221	µg/L	Grab	0.5
PCB-1232	µg/L	Grab	0.5
PCB-1242	µg/L	Grab	0.5
PCB-1248	µg/L	Grab	0.5
PCB-1254	µg/L	Grab	0.5
PCB-1260	µg/L	Grab	0.5
Toxaphene	µg/L	Grab	--
Atrazine	µg/L	Grab	--
Bentazon	µg/L	Grab	--
Carbofuran	µg/L	Grab	--
2,4-D	µg/L	Grab	--
Dalapon	µg/L	Grab	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	Grab	--
Di(2-ethylhexyl)adipate	µg/L	Grab	--
Dinoseb	µg/L	Grab	--
Diquat	µg/L	Grab	--
Endothal	µg/L	Grab	--
Ethylene Dibromide	µg/L	Grab	--
Methoxychlor	µg/L	Grab	--
Molinate (Ordram)	µg/L	Grab	--
Oxamyl	µg/L	Grab	--
Picloram	µg/L	Grab	--
Simazine (Princep)	µg/L	Grab	--
Thiobencarb	µg/L	Grab	--
2,3,7,8-TCDD (Dioxin)	µg/L	Grab	--
2,4,5-TP (Silvex)	µg/L	Grab	--
Diazinon	µg/L	Grab	--
Chlorpyrifos	µg/L	Grab	--
Ammonia (as N)[3]	mg/L	Grab	--
Boron	µg/L	Grab	--
Chloride	mg/L	Grab	--
Flow	MGD	Meter	--
Hardness (as $CaCO_3$)[3]	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	Grab	--
Mercury, Methyl	ng/L	Grab	--
Nitrate (as N)[3]	mg/L	Grab	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Nitrite (as N)[3]	mg/L	Grab	--
pH[3]	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	Grab	--
Specific conductance (EC)[3]	µmhos/cm	Grab	--
Sulfate	mg/L	Grab	--
Sulfide (as S)	mg/L	Grab	--
Sulfite (as SO_3)	mg/L	Grab	--
Temperature[3]	^oC	Grab	--
Total Dissolved Solids (TDS)	mg/L	Grab	--

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 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.

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. Upon written request of the 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).

3. **Compliance Time Schedules.** For compliance time schedules included in the 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.

4. 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.

B. Self-Monitoring Reports (SMR's)

1. The Discharger 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. The Discharger 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. Monthly SMRs are required even if there is no discharge. If no discharge occurs during the month, the monitoring report must be submitted stating that there has been no discharge.

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

Table E-10. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit 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	Permit effective date	Sunday through Saturday	Submit with monthly SMR
2/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Year	Permit effective date	1 January through 31 December	1 February of following year
1/Permit Term	Permit effective date	Permit effective date through permit term	First day of second calendar month following month of sampling

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

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

   a. Sample results greater than or equal to the 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 (± 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 Minimum Level (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. The Discharger shall submit SMR's in accordance with the following requirements:

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

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

   c. The Discharger shall attach 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 SMR's calculations and reports in accordance with the following requirements:

   a. **Mass Loading Limitations**. When discharging to Bloods Creek, for BOD_5, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMR's. The mass loading shall be calculated as follows:

      Mass Loading (lbs/day) = Flow (MGD) x Concentration (mg/L) x 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.

b. **Removal Efficiency (BOD_5 and TSS).** When discharging to Bloods Creek, the Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMR's. The percent removal shall be calculated as specified in Section VII.A of the Limitations and Discharge Requirements.

c. **Total Coliform Organisms Effluent Limitations**. When discharging to Bloods Creek, the 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 VII.C of the Limitations and Discharge Requirements.

d. **Dissolved Oxygen Receiving Water Limitations**. When discharging to Bloods Creek, the Discharger shall report monthly in the SMR the dissolved oxygen concentrations in the effluent (Monitoring Location EFF-001) and the receiving water (Monitoring Locations RSW-001 and RSW-002).

e. **Turbidity Receiving Water Limitations**. When discharging to Bloods Creek, the Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-e of the Limitations and Discharge Requirements.

f. **Temperature Receiving Water Limitations**. When discharging to Bloods Creek, the 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.

g. **Dilution Ratio**. When discharging to Bloods Creek, the Discharger shall calculate and report the dilution ratio, which is to be calculated as the average daily downstream Bloods Creek flow divided by the average daily effluent flow.

C. Discharge Monitoring Reports (DMR's)

1. DMRs are U.S. EPA reporting requirements. As of the effective date of this Order, if the Discharger operates a "minor" facility as designated on page 1 of this Order, electronic submittal of DMRs is not required. However, by December 2016, the Discharger will be required to electronically submit DMRs. The State Water Board will provide notification of this requirement prior to December 2016. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at: <http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring>.

D. Other Reports

1. **Special Study Reports and Progress Reports**. As specified in the Special Provisions contained in section VI of the Order, special study and progress reports shall be submitted in accordance with the following reporting requirements.

Table E-11. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Dilution/Mixing Zone Study, Workplan and Schedule (Special Provision VI.C.2.b)	**1 February 2017**
Dilution/Mixing Zone Study, Final Report (Special Provision VI.C.2.b)	**1 September 2019**
Salinity Evaluation and Minimization Plan, Progress Report (Special Provision VI.C.3.a)	**180 days prior to the permit expiration date**

2. The 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. 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 permit adoption, the 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, E-7, and E-8. In addition, no less than 6 months prior to conducting the effluent and receiving water characterization monitoring required in Section IX.B, the Discharger shall submit a report outlining RL's, MDL's, and analytical methods for the constituents listed in Table E-9. 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 the lowest ML value as the RL, , and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table E-9 provides required maximum reporting levels in accordance with the SIP.

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

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

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

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

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

e. The Discharger may also be requested to submit an annual report to the 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.

ATTACHMENT F – FACT SHEET

Contents

I. Permit Information F-3
II. Facility Description F-4
A. Description of Wastewater and Biosolids Treatment and Controls F-4
B. Discharge Points and Receiving Waters F-5
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data F-5
D. Compliance Summary F-6
E. Planned Changes – Not Applicable F-6
III. Applicable Plans, Policies, and Regulations F-6
A. Legal Authorities F-6
B. California Environmental Quality Act (CEQA) F-7
C. State and Federal Laws, Regulations, Policies, and Plans F-7
D. Impaired Water Bodies on CWA 303(d) List F-9
E. Other Plans, Policies and Regulations F-9
IV. Rationale For Effluent Limitations and Discharge Specifications F-9
A. Discharge Prohibitions F-11
B. Technology-Based Effluent Limitations F-12
1. Scope and Authority F-12
2. Applicable Technology-Based Effluent Limitations F-12
C. Water Quality-Based Effluent Limitations (WQBEL's) F-13
1. Scope and Authority F-13
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives F-14
3. Determining the Need for WQBEL's F-28
4. WQBEL Calculations F-48
5. Whole Effluent Toxicity (WET) F-50
D. Final Effluent Limitation Considerations F-52
1. Mass-based Effluent Limitations F-52
2. Averaging Periods for Effluent Limitations F-52
3. Satisfaction of Anti-Backsliding Requirements F-52
4. Antidegradation Policies F-54
5. Stringency of Requirements for Individual Pollutants F-54
E. Interim Effluent Limitations – Not Applicable F-56
F. Land Discharge Specifications – Not Applicable F-56
G. Recycling Specifications – Not Applicable F-56
V. Rationale for Receiving Water Limitations F-56
A. Surface Water F-56
B. Groundwater – Not Applicable F-56
VI. Rationale for Provisions F-56
A. Standard Provisions F-56
B. Special Provisions F-57
1. Reopener Provisions F-57
2. Special Studies and Additional Monitoring Requirements F-57
3. Best Management Practices and Pollution Prevention F-61
4. Construction, Operation, and Maintenance Specifications F-61
5. Special Provisions for Municipal Facilities (POTW's Only) F-62
6. Other Special Provisions F-62
7. Compliance Schedules – Not Applicable F-62

VII. Rationale for Monitoring and Reporting Requirements F-62
A. Influent Monitoring F-62
B. Effluent Monitoring F-62
C. Whole Effluent Toxicity Testing Requirements F-63
D. Receiving Water Monitoring F-64
1. Surface Water F-64
2. Groundwater – Not Applicable F-64
E. Other Monitoring Requirements F-64
VIII. Public Participation F-64
A. Notification of Interested Parties F-64
B. Written Comments F-65
C. Public Hearing F-65
D. Reconsideration of Waste Discharge Requirements F-65
E. Information and Copying F-65
F. Register of Interested Persons F-66
G. Additional Information F-66

Tables

Table F-1. Facility Information F-3
Table F-2. Historic Effluent Limitations and Monitoring Data F-5
Table F-3. Basin Plan Beneficial Uses F-7
Table F-4. Summary of Technology-based Effluent Limitations F-13
Table F-5. Acute and Chronic Aquatic Life Mixing Zones F-17
Table F-6. Summary of CTR Criteria for Hardness-dependent Metals F-23
Table F-7. Verification of CTR Compliance for Copper F-27
Table F-8. Verification of CTR Compliance for Lead F-28
Table F-9. Salinity Water Quality Criteria/Objectives F-29
Table F-10. Summary of Water Quality-Based Effluent Limitations F-49
Table F-11. Summary of Final Effluent Limitations F-55

ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5B020101001
CIWQS Facility Place ID	209035
Discharger	Bear Valley Water District
Name of Facility	Bear Valley Wastewater Treatment Facility
Facility Address	441 Creekside Drive
	Bear Valley, CA 95223
	Alpine County
Facility Contact, Title and Phone	Jeff Gouveia, General Manager, (209) 753-2112
Authorized Person to Sign and Submit Reports	Jeff Gouveia, General Manager, (209) 753-2112
Mailing Address	P.O. Box 5027, Bear Valley, CA 95223
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	A
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	2.5 million gallons per day (MGD), maximum daily flow 1.0 MGD, average monthly flow
Facility Design Flow	0.50 MGD
Watershed	Upper Stanislaus
Receiving Water	Bloods Creek
Receiving Water Type	Inland surface water

A. Bear Valley Water District (hereinafter Discharger) is the owner and operator of the Bear Valley Wastewater Treatment Facility (hereinafter Facility), a POTW.

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

B. The Facility discharges wastewater to Bloods Creek, a water of the United States, tributary to North Fork Stanislaus River, within the Upper Stanislaus watershed. The Discharger was previously regulated by Order R5-2011-0053, and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0085146 adopted on 4 August 2011 and expires on 1 August 2016. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its waste discharge requirements (WDR's) and NPDES permit on 28 December 2015. The application was deemed complete on 6 January 2016. A site visit was conducted on 9 October 2015 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

D. This Order is an NPDES permit and regulates the surface water discharge to Bloods Creek. Separate Waste Discharge Requirements Order 5-01-208 regulates the Facility and all discharges to groundwater (e.g., effluent storage/polishing reservoir and spray disposal areas).

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the communities of Bear Valley, Bear Valley Mountain Resort and Lake Alpine/United States Forest Service and serves a population of approximately 121 permanent residents as well as seasonal users. The design flow capacity of the Facility is 0.50 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

The treatment system consists of a comminutor; biological treatment in a 14.18 million-gallon aeration pond; disinfection in a 12,000-gallon chlorine contact tank; and effluent storage and polishing in a 76.4 million-gallon unlined storage/polishing reservoir. The aeration pond is split into two equal sections by a redwood baffle. Aeration is provided by one 40-horsepower (Hp) VFD- equipped blower to 36-18 inch diameter submerged coarse diffusers installed at the bottom of the pond. Effluent from the aeration pond is disinfected in the chlorine contact tank prior to transfer to the storage/polishing reservoir. Effluent from the storage/polishing reservoir is disposed of through spray irrigation during the summer months (June through October), which is regulated by WDR Order 5-01-208. The Facility capacity allows for retention of wastewater for the remainder of the year; however, there may be instances where a discharge to surface water may occur.

The Discharger currently has 80 acres of land available for use in wastewater treatment, storage, and disposal, none of which are owned by the Discharger. The Discharger leases 40 acres of private land and 40 acres from the United States Forest Service (USFS) under Special Use Permit (SUP) No. 1029-01. The USFS lease expired on 1 July 2015. The Discharger is in the process of renewing and securing the USFS lease for another 10 years, which will allow them to use this permit area through 2026. The process of renewing and securing the USFS lease is expected to be completed by the end of 2016.

The effluent disposal potential of the Facility is less than the amount of total water (i.e., influent wastewater, precipitation, and groundwater entering the system). Additional land for expansion of the existing land disposal and reclamation facilities is not currently available.

During some wet years, the Discharger has entered the winter season with a substantial amount of water still in its storage/polishing reservoir from the previous winter. This resulted in unauthorized emergency discharges from the storage/polishing reservoir to Bloods Creek at the end of the snowmelt seasons in the late 1990's, with the most recent discharge occurring in 1999. The Discharger attributed the unauthorized discharges to lack of adequate storage capacity, excessive infiltration and inflow (I/I), consecutive wet years, and heavy snowmelt. To address the unauthorized discharges, the Central Valley Water Board adopted Cease and Desist Order (CDO) Nos. 5-00-001 and 5 01-209. In response to CDO 5-01-209, the Discharger submitted a Land Disposal Maximization Plan in February 2002, which evaluated the feasibility of options that would either minimize flow to the land disposal facilities or maximize the land disposal capacity of the Facility. The Discharger chose to implement five options from the plan and concluded that if the chosen plan were implemented, land disposal capacity would be increased by 81 million gallons. The options chosen included design and implementation of a water conservation program, implementation of an I/I program, evaluation for the potential to increase irrigation application by evaluating potential expansion of land disposal areas . Based on the Discharger's initial steps taken in implementing the plan and the commitment to implement the plan in its entirety, the Central Valley Water Board rescinded CDO 5-01-209 on 7 June 2002. The Discharger has continued to implement a water conservation program and I/I program. As discussed above, the Discharger has maintained a total of 80 acres of usable disposal area.

The Facility has a design treatment capacity of 0.50 MGD. However, consistent with Order R5-2011-0053 and as described further in section IV.B.2.b of the Fact Sheet, this Order authorizes the discharge of up to a maximum daily effluent flow of 2.5 MGD and an average monthly effluent flow of 1.0 MGD from the storage/polishing reservoir to Bloods Creek. Discharges to Bloods Creek are allowed only during snowmelt season (i.e., 1 January through 30 June) and only when the effluent receives at least 20:1 dilution from the receiving water.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 18, T7N, R18E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point 001 to Bloods Creek, a water of the United States and a tributary to the North Fork Stanislaus River, at a point latitude 38° 27' 25" N and longitude 120° 02' 13" W.

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

Effluent limitations contained in Order R5-2011-0053 for discharges from Discharge Point 001 are as follows. The Discharger did not discharge at Discharge Point 001 during the term of Order R5-2011-0053; therefore, effluent monitoring data is not available.

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		
		Average Monthly	Average Weekly	Maximum Daily
Flow	MGD	1.0	--	2.5
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	40	60
	lbs/day[1]	250	330	1,250
	% removal	85	--	--

Parameter	Units	Effluent Limitation		
		Average Monthly	Average Weekly	Maximum Daily
Total Suspended Solids	mg/L	30	40	60
	lbs/day[1]	250	330	1,250
	% removal	85	--	--
Copper, Total Recoverable	µg/L	0.56	--	1.1
Lead, Total Recoverable	µg/L	0.082	--	0.16
Aluminum, Total Recoverable	µg/L	--	--	440[2]
		71[3]	--	143[3]
Acute Toxicity	% survival	--	--	70[4]/90[5]
Ammonia Nitrogen, Total (as N)	mg/L	--	--	7.6[2]
		1.1[3]	--	2.1[3]
	lbs/day[1]	9.2	--	44
Chlorine, Total Residual	mg/L	--	0.011[6]	0.019[7]
Iron, Total Recoverable	µg/L	300[8]	--	--
Manganese, Total Recoverable	µg/L	50[8]	--	--
Settleable Solids	ml/L	0.1	--	0.2
Total Coliform Organisms	MPN/100 mL	--	23[9]	240[10]

NR – Not Reported

[1] Average monthly and average weekly mass-based effluent limitations are based on a permitted average monthly flow of 1.0 MGD. Maximum daily mass-based effluent limitations are based on a permitted maximum daily flow of 2.5 MGD.

[2] Interim effluent limitation effective until 1 August 2016.

[3] Final effluent limitation effective on 1 August 2016.

[4] Minimum for any one bioassay.

[5] Median for any three or more consecutive bioassays.

[6] Applied as a 4-day average effluent limitation.

[7] Applied as a 1-hour average effluent limitation.

[8] Applied as an annual average effluent limitation.

[9] Applied as a 7-day median effluent limitation.

[10] Not to be exceeded more than once in any 30-day period.

D. Compliance Summary

The Discharger did not discharge to Bloods Creek during the previous permit term and was not subject to any enforcement actions during the term of Order R5-2011-0053.

E. Planned Changes – Not Applicable

III. 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 this Facility 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 Plan.** The Central Valley Water Board adopted a Water Quality Control Plan, Fourth Edition (Revised June 2015), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan.

   The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table II-1, Section II, does not specifically identify beneficial uses for Bloods Creek, but does identify present and potential uses for the North Fork Stanislaus River from its source to New Melones Reservoir, to which Bloods Creek, is tributary. In addition, the Basin Plan implements 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. Thus, beneficial uses applicable to Bloods Creek are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Bloods Creek	Existing: Municipal and domestic water supply (MUN); agricultural supply, including irrigation and stock watering (AGR); hydropower generation (POW); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); and wildlife habitat (WILD).

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

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

any State Water Board plan, so no effluent limitations are included in this permit pursuant to 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 Industrial Storm water General Order. Therefore, this Order does not regulate storm water.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 26 June 2015, U.S. EPA gave final approval to California's 2012 section 303(d) List of Water Quality Limited Segments. The Basin Plan references 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 limitations for point sources* (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to* [WQLS's]*. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." Bloods Creek and the North Fork Stanislaus River upstream of New Melones Reservoir are not listed on the 303(d) list of impaired water bodies.

E. Other Plans, Policies and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 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 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 at page IV-17.00, contains an implementation policy, "*Policy for Application of Water Quality Objectives*," that specifies 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 Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*" in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the 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 Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at 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 Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order 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 Plan prohibits conditions that create a nuisance.

4. **Prohibition III.D (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on 40 C.F.R. section 122.41 et seq. that requires the proper design and operation of treatment facilities.

5. **Prohibition III.E (No discharge to Bloods Creek between 1 July and 31 December).** As described further in section II.A of this Fact Sheet, discharges to Bloods Creek are only necessary to maintain design conditions in the storage/polishing reservoir in emergency situations during severe wet weather periods and during snowmelt season. The Discharger has attributed the necessity for these discharges to lack of adequate storage capacity, excessive I/I, consecutive wet years, and heavy snowmelt. Since snowmelt season varies from year to year, the maximum amount of flow in Bloods Creek can occur anytime between December and late June, depending on the timing and depth of snowfall, during which time adequate dilution is available. Therefore, the timing of the discharge to maximize dilution could occur anytime within that window depending on the particular weather patterns for that year. Consistent with Order R5-2011-0053, this Order prohibits discharge to Bloods Creek outside of snowmelt season (1 July and 31 December) to ensure the Discharger mitigates the need to discharge to Bloods Creek and that discharges to Bloods Creek occur only when necessary and when diluting flows in Bloods Creek are greatest.

6. **Prohibition III.F (No discharge without a minimum of 20:1 flow dilution).** Consistent with Order R5-2011-0053, this Order prohibits discharge to Bloods Creek except when a minimum of 20:1 (receiving water to effluent) flow dilution is achieved. This prohibition is based on a 1 July 2003 letter from the State Water Board, Division of Drinking Water (DDW) stating that a "*filtered and disinfected effluent should be required in situations where critical beneficial uses (i.e., food crop irrigation or body contact recreation) are made of the receiving waters unless a 20:1 dilution ratio is available*." Since the Discharger does not provide tertiary treatment, the 20:1 dilution requirement is retained in this Order.

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. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. part 133.

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

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for 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 municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 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 for BOD_5 and TSS. Order R5-2011-0053 included average weekly effluent limitations (AWEL's) of 40 mg/L for BOD_5 and TSS, which is more stringent than the average weekly secondary treatment standard of 45 mg/L. In accordance with federal anti-backsliding requirements, this Order retains the AWEL's of 40 mg/L. Maximum daily effluent limitations (MDEL's) for BOD_5 and TSS are also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 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 BOD_5 and TSS over each calendar month.

b. **Flow.** The Facility was designed to provide a secondary level of treatment for up to a design flow of 0.50 MGD. However, Order R5-2011-0053 included an average monthly flow limitation of 1.0 MGD and a maximum daily flow limitation of 2.5 MGD to minimize the timeframe for discharge (i.e., allowing the discharge of a large volume over a short time period when Bloods Creek flows are very high due to snowmelt). These flow limitations will avoid gross over-irrigation of the land disposal area during summer months and will allow the Discharger to maintain reserve capacity in the storage/polishing reservoir to handle unexpected situations. In accordance with the prohibitions in section III of this Order, discharges to Bloods Creek are only allowed when necessary, and only when the effluent receives at least 20:1 dilution from Bloods Creek, during which time the public use of Bloods Creek is expected to be minimal.

c. **pH.** The secondary treatment regulations at 40 C.F.R. part 133 also 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 Plan's water quality objectives for pH.

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table F-4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	1.0	--	2.5	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	40	60	--	--
	lbs/day[1]	630	830	1,250	--	--
	% removal	85	--	--	--	--
pH	standard units	--	--	--	6.0	9.0
Total Suspended Solids	mg/L	30	40	60	--	--
	lbs/day[1]	630	830	1,250	--	--
	% removal	85	--	--	--	--

[1] Mass limits are based on a design flow of 2.5 MGD.

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.

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 Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

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

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 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 Facility discharges to Bloods Creek on the downstream side of the Facility access bridge. Bloods Creek is tributary to the North Fork Stanislaus River and flows from east to west at the outfall location. Flows in Bloods Creek at this location are primarily the result of snowmelt, and are typically highest during late winter and early spring. After the conclusion of the snowmelt season, Bloods Creek flow is greatly reduced, and the creek is typically not flowing during warm summer months. Refer to III.C.1 above for a complete description of the beneficial uses.

b. **Effluent and Ambient Background Data.** The Discharger did not discharge to Bloods Creek during the term of Order R5-2011-0053. Therefore, water quality samples collected from the storage polishing pond have been used to characterize the effluent. (Note that the term "effluent" data, as used throughout this Fact Sheet, refers to the water quality data collected from the storage/polishing reservoir.) The only data collected from the storage/polishing reservoir during the term of Order R5-2011-0053 was annual monitoring (spring 2012, 2013, 2014, and 2015) for aluminum, ammonia, copper, electrical conductivity, iron, lead, manganese, nitrate, nitrite, and pH. This new information has been used for the RPA for these constituents. For the remaining constituents, the results of the RPA from Order R5-2011-0053, which was based on data collected from the storage/polishing reservoir and the receiving water during the 2008 through 2010 discharge seasons, has been carried forward because there is no new information to conduct a new RPA.

c. **Assimilative Capacity/Mixing Zone**

i. **Regulatory Guidance for Dilution Credits and Mixing Zones.** The Discharger has requested mixing zones and dilution credits for compliance with aquatic life water quality criteria. The Central Valley Water Board has the discretion to accept or deny mixing zones and dilution credits. The CWA directs the states to adopt water quality standards to protect the quality of its waters. U.S. EPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR § 122.44 and 122.45). The U.S. EPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the U.S. EPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2 90 001)(TSD).

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

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

For incompletely-mixed discharges, the Discharger must complete an independent mixing zone study to demonstrate to the Central Valley Water Board that a dilution credit is appropriate. In granting a mixing zone, Section 1.4.2.2 of the SIP requires the following to be met:

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

A: A mixing zone shall not:

1. compromise the integrity of the entire water body;

2. cause acutely toxic conditions to aquatic life passing through the mixing zone;

3. restrict the passage of aquatic life;

4. adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;

5. produce undesirable or nuisance aquatic life;

6. result in floating debris, oil, or scum;

7. produce objectionable color, odor, taste, or turbidity;

8. cause objectionable bottom deposits;

9. cause nuisance;

10. dominate the receiving water body or overlap a mixing zone from different outfalls; or

11. be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution 88-63), this SIP supersedes the provisions of that policy."

Section 1.4.2.1 of the SIP establishes the authority for the Central Valley Water Board to consider dilution credits based on the mixing zone conditions in a receiving water. Section 1.4.2.1 in part states:

"*The dilution credit, D, is a numerical value associated with the mixing zone that accounts for the receiving water entrained into the discharge. The dilution credit is a value used in the calculation of effluent limitations (described in Section 1.4).* ***Dilution credits may be limited or denied on a pollutant-by-pollutant basis, which may result in a dilution credit for all, some, or no priority pollutants in the discharge***." [emphasis added]

The mixing zone is thus an administrative construct defined as an area around the outfall that may exceed water quality objectives, but is otherwise protective of the beneficial uses. Dilution is defined as the amount of mixing that has occurred at the edge of this mixing zone under critical conditions, thus protecting the beneficial uses at the concentration and for the duration and frequency required.

ii. **Dilution/Mixing Zone Study Results.** The Discharger conducted a mixing zone study in June 2015 and requested acute and chronic aquatic life mixing zones for development of WQBEL's for ammonia, copper, lead, and aluminum. Bloods Creek is an ephemeral stream tributary to the North Fork Stanislaus River. Bloods Creek flow levels are driven primarily by snow melt from the surrounding watershed in late spring to early summer. During the remainder of the year Bloods Creek flow levels are minimal to nonexistent. The outfall to Bloods Creek is via a 12 inch diameter pipe attached to a bridge. The outfall

pipe is submerged, entering the creek about mid-stream, and is fitted with a duckbill valve to maintain exit velocity for improved mixing. Based on flow data from January 2010 to June 2012, Bloods Creek flow ranged from 0.9 to 58 MGD.

During the time at which the Discharger conducted the mixing zone study the creek width was about 16 feet at the effluent outfall and about 5 feet deep. The creek narrows and is shallower downstream. At 10 feet downstream the width was 8 feet with a depth of 1 foot, and by 40 feet downstream the creek was about 7 feet wide and very shallow, only 2 to 3 inches deep. The Discharger conducted a dye study to calculate dilution and estimate the dimensions of the mixing zones. The study was conducted by pumping water from Bloods Creek upstream of the outfall and discharging a surrogate effluent through the outfall with a dye tracer.

The Discharger intended to conduct the study with a 20:1 dilution ratio, consistent with Discharge Prohibition III.F, under conditions that simulate the driest, lowest creek flow conditions expected during which an effluent discharge might occur. The mixing zone study work plan specified that the study would target a receiving water flow of approximately 2 MGD, and a surrogate effluent flow of 0.2 MGD would be discharged. The fluorescence of the creek was measured along monitoring transects at 0, 2, 10, 40, 100, 150, 190, 214, and 326 feet downstream of the outfall in Bloods Creek. Along each transect, fluorescence was measured at one foot intervals, at approximately mid-depth. Using the fluorescence data collected, a dilution ratio was determined at each 1 foot interval along the sampling transect.

Based on the dye study results at the low flow conditions there was an insufficient zone of passage beyond the 10 foot transect. Therefore, the mixing zones have been established based on the available dilution at the10 foot transect. Table F-5, below, summarizes the dimensions and dilution credits for the acute and chronic aquatic life mixing zones.

Table F-5. Acute and Chronic Aquatic Life Mixing Zones

Mixing Zone	Length (ft)	Width (ft)	Dilution Credit
Acute	10	6	5:1
Chronic	10	6	5:1

Upon arrival at the site to conduct the study it was determined that the automated stream flow monitoring system was overestimating the flow due to atypical heavy filamentous algae growth in the creek that impeded flow causing a backwater curve at the stream gage. A manual measurement was taken to estimate the stream flow, and was estimated to be 1.6 MGD. After completing the dye study it was determined that the manual estimate was high and the actual flow in the creek was about 0.77 MGD. The intent of the study was to discharge the surrogate effluent at a dilution ratio of 20:1. However, due to the inaccurate flow measurements the actual dilution ratio of effluent-to-creek flow was about 9:1 during the dye study.

Although there were issues with the flow estimates in Bloods Creek and the creek flows were lower than expected during a discharge, the information gathered from the dye study is sufficient to estimate available dilution and has been used to conservatively establish mixing zones and dilution credits in this Order. The discharge from the Facility to Bloods Creek is expected during wet

winters with above average snowfall, so Bloods Creek flows would be higher during these conditions. Therefore, an additional study is needed to confirm the mixing and dilution at higher stream flows and at the correct dilution ratio. This Order requires the Discharger to conduct an additional mixing zone study and submit the results by **1 September 2019**.

iii. **Evaluation of Available Dilution for Acute and chronic Aquatic Life Criteria.** The acute and chronic aquatic life mixing zones meet the requirements of the SIP as follows:

(a) *Shall not compromise the integrity of the entire waterbody* – The TSD states that, "*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats*." The mixing zones are approximately 10 feet x 6 feet, which makes up a small fraction of the multi-mile length creek. The mixing zones do not compromise the integrity of the entire waterbody.

(b) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The SIP requires that the acute mixing zone be appropriately sized to prevent lethality to organisms passing through the mixing zone. U.S. EPA recommends that float times through a mixing zone less than 15 minutes ensures that there will not be lethality to passing organisms. The acute mixing zone allowed in this Order extends only 10 feet downstream from the outfall. The float time is very short, literally only a few seconds. In addition, this Order includes an acute toxicity effluent limitation that requires compliance to be determined based on acute bioassays using 100% effluent. Compliance with these requirements ensures that acutely toxic conditions to aquatic life passing through the acute and chronic mixing zones do not occur.

(c) *Shall not restrict the passage of aquatic life* – The Discharger conducted a mixing zone study to evaluate the near-field effects of the discharge. The Discharger evaluated the zone of passage around the mixing zone where water quality objectives are met. The allowed mixing zone has been established to ensure an adequate zone of passage is maintained. Bloods Creek ranges from 18 feet wide at the outfall to 10 feet wide at the downstream edge of the mixing zone. The effluent is discharged from an outfall pipe located at approximately the center of the creek and the effluent plume remains in the center portion of the creek within the mixing zone. The maximum width of the mixing zone is 6 feet, resulting is zones of passage on either side of the mixing zone.

(d) *Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws* – The acute and chronic mixing zones will not cause acutely toxic conditions, allow an adequate zone of passage, and are sized appropriately to ensure that there will be no adverse impacts to biologically sensitive or critical habitats.

(e) *Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance* – Based on effluent

quality in the effluent storage pond, the effluent has not been shown to result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance. In addition, this Order establishes effluent limitations (e.g., for BOD_5 and TSS), discharge prohibitions, and receiving water limitations to prevent these conditions from occurring. Therefore, the allowance of the acute and chronic mixing zones will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance.

(f) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The acute and chronic mixing zones are small relative to the water body, so it will not dominate the water body. Furthermore, the mixing zones do not overlap mixing zones from other outfalls. There are no outfalls or mixing zones in the vicinity of the discharge.

(g) *Shall not be allowed at or near any drinking water intake* – The acute and chronic mixing zones are not near a drinking water intake.

iv. **Evaluation of Available Dilution for Specific Constituents (Pollutant-by-Pollutant Evaluation).** When determining to allow dilution credits for a specific pollutant several factors must be considered, such as, available assimilative capacity, facility performance, and best practicable treatment or control. In this subsection a pollutant-by-pollutant evaluation of dilution is discussed. The Discharger requested acute and chronic aquatic life dilution credits for ammonia, aluminum, copper, and lead.

Based on the estimated effluent quality, the Facility will not be able to meet end-of-pipe effluent limitations for ammonia, aluminum, copper, or lead. Assimilative capacity is available in the receiving water, and, as discussed above, the acute and chronic aquatic life mixing zones meet the requirements of the SIP and Basin Plan. Therefore, the WQBEL's for ammonia, aluminum, copper, or lead have been developed considering the allowance of dilution credits. Section 1.4.2.2 of the SIP requires that, "*A mixing zone shall be as small as practicable*.", and Section 1.4.2.2.B requires, "*The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements*." Based on the estimated effluent quality, the Central Valley Water Board has determined a 5:1 dilution credit for acute and aquatic life criteria is needed for ammonia, aluminum, copper, or lead. This represents mixing zones that are as small as practicable for this Facility and that fully comply with the SIP.

v. **Regulatory Compliance for Dilution Credits and Mixing Zones.** To fully comply with all applicable laws, regulations and policies of the State, Central Valley Water Board approved mixing zones and the associated dilution credits based on the following:

(a) Mixing zones are allowed under the SIP provided all elements contained in Section 1.4.2.2 are met. Based on the mixing zone study conducted by the Discharger, the Central Valley Water Board has determined that these factors are met.

Section 1.4.2.2.of the SIP requires mixing zones to be as small as practicable. Based on the mixing zone study conducted by the Discharger, the Central Valley Water Board has determined the mixing zones are as small as practicable.

(b) The allowance of mixing zones in this Order complies with California's State Anti-Degradation Policy, State Water Board Resolution 68 16, which incorporates the federal antidegradation regulations and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of Resolution 68 16 states:

> "*Any activity which produces or may produce a waste or increased volume or concentration of waste and which dischargers or proposed to discharge to existing high quality waters will be required to meet waste discharge requirements 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*."

The WQBEL's in this Order for ammonia, aluminum, copper, and lead will result in the Discharger implementing best practicable treatment or control (BPTC) of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

(c) In accordance with Section 1.4.2.2 of the SIP, the Board has determined the mixing zones are as small as practicable, will not compromise the integrity of the entire water body, restrict the passage of aquatic life, dominate the water body or overlap existing mixing zones from different outfalls. The mixing zones are small relative to the size of the receiving water, are not at or near a drinking water intake, and do not overlap a mixing zone from a different outfall.

(d) The Central Valley Water Board has determined allowing such mixing zones will not cause acutely toxic conditions to aquatic life passing through the mixing zone.

(e) The Central Valley Water Board has determined the discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under the federal or State endangered species laws, because the mixing zones are relatively small and acutely toxic conditions will not occur in the mixing zone. The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because the Order establishes effluent limitations (e.g., for BOD_5 and TSS), receiving water limitations, and discharge prohibitions to prevent these conditions from occurring.

(f) As required by the SIP, in determining the extent of or whether to allow mixing zones and dilution credits, the Central Valley Water Board has considered the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the

mixing zones and dilution credits are adequately protective of the beneficial uses of the receiving water.

(g) The Central Valley Water Board has determined the mixing zones comply with the SIP for priority pollutants.

(h) The Central Valley Water Board has determined the mixing zones comply with the Basin Plan for non-priority pollutants. The Basin Plan requires a mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Central Valley Water Board has considered the procedures and guidelines in Section 5.1 of U.S. EPA's Water Quality Standards Handbook, 2nd Edition (updated July 2007) and Section 2.2.2 of the TSD. The SIP incorporates the same guidelines.

(i) Section 1.4.2.2B of the SIP, in part states, "*The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements*." The Central Valley Water Board determined the effluent limitations required by this Order for ammonia, aluminum, copper, and lead comply with the State Anti-Degradation Policy because the Order will result in the Discharger implementing BPTC of the discharge necessary to assure that 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 Central Valley Water Board also determined the Discharger will be in immediate compliance with the effluent limitations.

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 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.

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.

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP[1] and the CTR[2]. 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 zones[3]. Where design flows for aquatic life criteria include the lowest 1-day flow with an average reoccurrence

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

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. § 131.38(c)(4)).

[3] 40 C.F.R. §131.3(c)(4)(ii)

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).[1] This section of 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.[2] 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.[3] 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.

i. **Summary Findings**

The ambient hardness for Bloods Creek is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 11 mg/L to 26 mg/L based on collected ambient data from 2010 (used for the RPA for Order R5-2011-0053) and from May 2012 through May 2015. 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 based on the ambient hardness concentrations measured in the receiving water, the Central Valley Water Board has discretion to select ambient hardness values within the range of 11 mg/L (minimum) up to 26 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-6 for the following reasons.

(a) Using the ambient receiving water hardness values shown in Table F-6 will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.

(b) The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, 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 the Discharger 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 has used the ambient hardness values shown in Table F-6 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.

(c) Using an ambient hardness that is higher than the minimum of 11 mg/L will result in limits that may allow increased metals to be discharged to the creek, 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

[1] 40 C.F.R. §131.38(c)(2)(iii) Table 4
[2] 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2
[3] 40 C.F.R. §131.38(c)(2)(i)

(see antidegradation findings in Section IV.D.4 of the Fact Sheet). The Antidegradation policy requires the Discharger to meet waste discharge requirements 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.

(d) Using the ambient hardness values shown in Table F-6 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-6. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L)[2,3]	CTR Criteria (µg/L, total recoverable)[1]	
		acute	chronic
Copper	20	3.1	2.4
Chromium III	20	460	55
Cadmium	20	0.74	0.70
Lead	19	9.9	0.38
Nickel	20	120	13
Silver	14	0.14	--
Zinc	20	31	31

[1] Metal criteria rounded to two significant figures in accordance with the CTR (40 C.F.R. §131.38(b)(2)).

[2] The ambient hardness values in this table represent actual observed receiving water hardness measurements from the dataset shown in Figure F-1.

[3] The CTR's hardness dependent metals criteria equations vary differently depending on the metal, which results in differences in the range of ambient hardness values that may be used to develop effluent limitations that are protective of beneficial uses and comply with CTR criteria for all ambient flow conditions.

ii. **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:

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

Where:

H = ambient hardness (as $CaCO_3$) [1]

WER = water-effect ratio

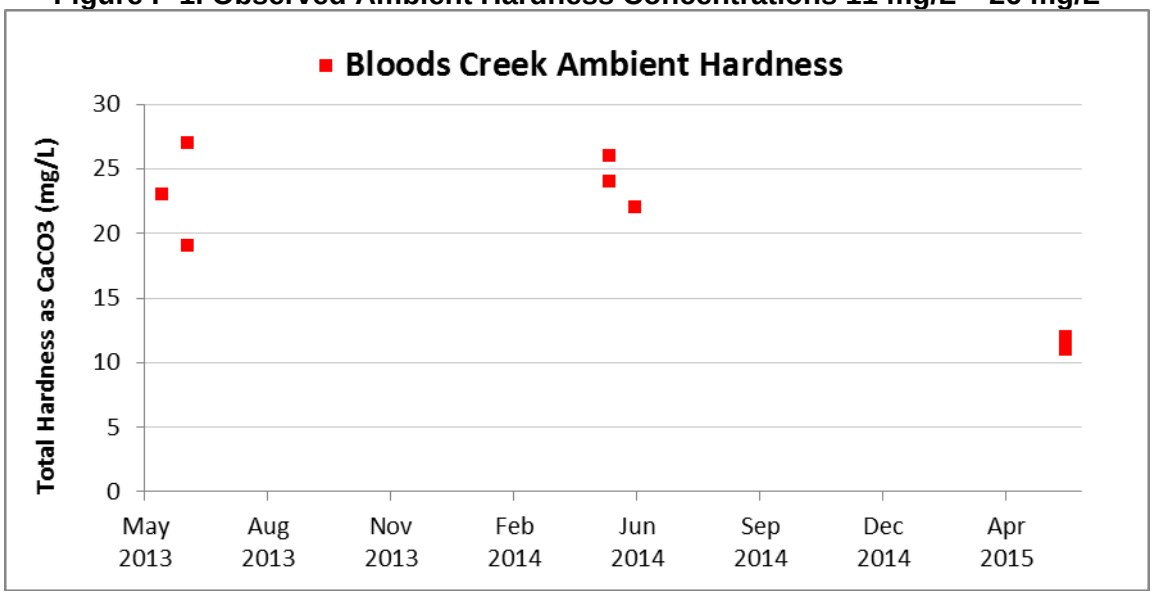
m, b = metal- and criterion-specific constants

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 three 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). The 1Q10 and 7Q10 Bloods Creek flows are 0 MGD. However, this Order prohibits discharges that do not receive 20:1 dilution in the receiving water. Therefore, assuming a maximum daily effluent flow of 2.5 MGD, the design Bloods Creek flow is 47.5 MGD (73 cfs).

iii. **Ambient Conditions**

The ambient receiving water hardness varied from 11 mg/L to 26 mg/L, based on nine samples from 2010 (used for the RPA for Order R5-2011-0053) and from May 2012 through May 2015 (see Figure F-1).

Figure F-1. Observed Ambient Hardness Concentrations 11 mg/L – 26 mg/L



In this analysis, the entire range of ambient hardness concentrations shown in Figure F-1 were considered to determine the appropriate ambient hardness to calculate the CTR criteria and effluent limitations that are protective under all discharge conditions.

[1] For this discussion, all hardness values are expressed in mg/L as $CaCO_3$.
[2] 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

iv. **Approach to Derivation of Criteria**

As shown above, ambient hardness varies substantially. Because of the 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.

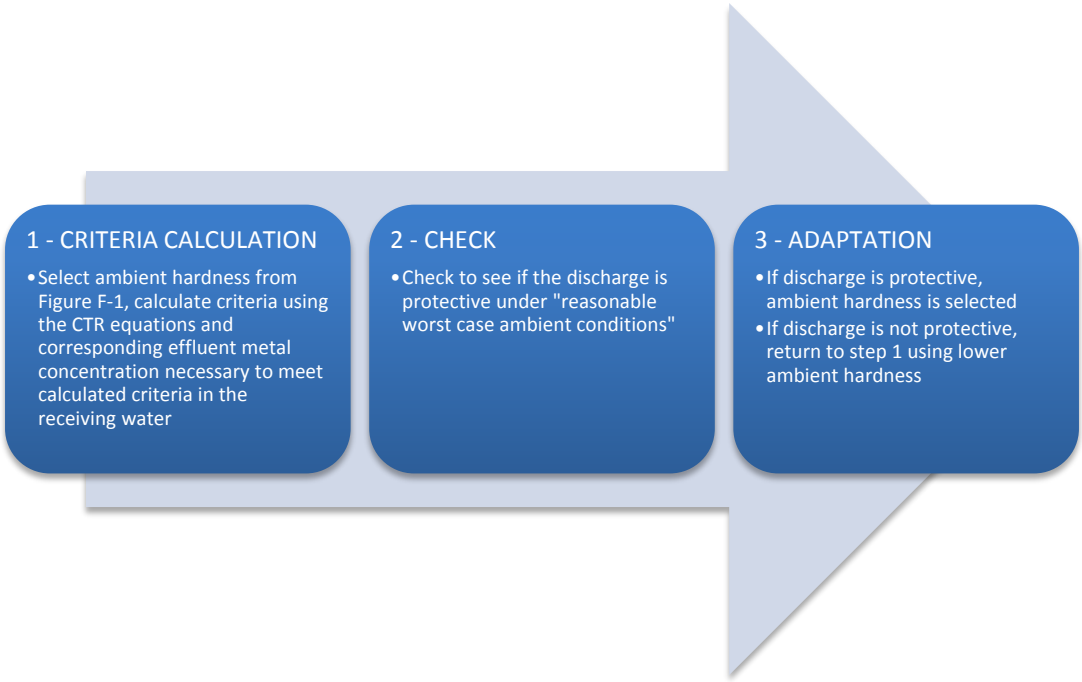
Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, staff have conducted an analysis considering varying ambient hardness and flow conditions. To do this, the Central Valley Water Board has ensured 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) have been selected to represent reasonable worst case receiving water flow conditions. The design condition of 20:1 dilution ratio has also been evaluated due to the discharge prohibition.
- "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 receiving water hardness condition of 11 mg/L was 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). Based on data in the record, this is a design condition that has not occurred in the receiving water and is 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 has been 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 of 26 mg/L. 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 receiving water."[2] 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 equation[3] 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.

[1] SIP Section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.
[2] U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.
[3] U.S. EPA NPDES Permit Writers' Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

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.

v. **Results of Iterative Analysis**

The above iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-6, above. Using these hardness values to calculate criteria, which are actual sample results collected in the receiving water, will result in effluent limitations that are protective under all ambient flow conditions. Copper and lead are used as examples below to illustrate the results of the analysis. Tables F-7 and F-8 below summarize the numeric results of the three step iterative approach for copper and lead. As shown in the example tables, ambient hardness values of 20 mg/L (copper) and 19 mg/L (lead) are used in the CTR equations to derive criteria and effluent limitations. Then under the "check" step, worst-case ambient receiving water conditions are used to test whether discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the above analysis, summarized in the tables below, show that the ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-7 and F-8 below, summarize the critical flow conditions. However, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

Table F-7. Verification of CTR Compliance for Copper

Receiving water hardness used to compute effluent limitations				**20 mg/L**
Effluent Concentration Allowance (ECA) for Copper[2]				**2.4 µg/L**
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			**Complies with CTR Criteria?**
	Hardness	**CTR Criteria (µg/L)**	**Ambient Copper Concentration[1] (µg/L)**	
1Q10	20	2.4	2.4	**Yes**
7Q10	20	2.4	2.4	**Yes**
Minimum 20:1 dilution	11.4	1.5	1.5	**Yes**
Max receiving water flow	11.3	1.4	1.4	**Yes**

[1] This concentration is derived using worst-case ambient conditions. These conservative assumptions will ensure that the receiving water always complies with CTR criteria.

[2] The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. This Order includes average monthly and maximum daily effluent limits for copper of 8.4 µg/L and 17 µg/L, respectively. The effluent limits were calculated per section 1.4 of the SIP, which ensures compliance with the ECA considering effluent variability and the probability basis of each effluent limit.

Table F-8. Verification of CTR Compliance for Lead

Receiving water hardness used to compute effluent limitations				19 mg/L
Effluent Concentration Allowance (ECA) for Lead[2]				0.38 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness	CTR Criteria (µg/L)	Ambient Lead Concentration[1] (µg/L)	
1Q10	20	0.41	0.38	**Yes**
7Q10	20	0.41	0.38	**Yes**
Minimum 20:1 dilution	11.4	0.20	0.20	**Yes**
Max receiving water flow	11.3	0.20	0.20	**Yes**

[1] This concentration is derived using worst-case ambient conditions. These conservative assumptions will ensure that the receiving water always complies with CTR criteria.

[2] The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. This Order includes average monthly and maximum daily effluent limits for lead of 1.8 µg/L and 3.7 µg/L, respectively. The effluent limits were calculated per section 1.4 of the SIP, which ensures compliance with the ECA considering effluent variability and the probability basis of each effluent limit.

3. Determining the Need for WQBEL's

a. **Constituents with No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential (i.e., constituents were not detected in the effluent or receiving water); however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. However, the following constituents were found to have no reasonable potential after assessment of the data:

i. **Salinity**

(a) **WQO.** The Basin Plan 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.

Table F-9. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective[1]	Secondary MCL[2]	U.S. EPA NAWQC	Storage/Polishing Reservoir	
				Average	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	N/A	160[3]	162
TDS (mg/L)	Varies	500, 1000, 1500	N/A	140[4]	378[4]
Sulfate (mg/L)	Varies	250, 500, 600	N/A	NR	NR
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	8.5[4]	18[4]

NR = Not Reported

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 Maximum calendar annual average.

4 Average and maximum values are based on data collected during the discharge seasons from January 2008 through June 2010.

(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.

(b) **RPA Results**

(1) **Chloride.** Effluent and receiving water monitoring data for chloride from the term of Order R5-2011-0053 is not available. Chloride concentrations in the storage/polishing reservoir ranged from <0.50 mg/L to 18 mg/L, with an average of 8.5 mg/L based on data

collected during the discharge seasons from January 2008 through June 2010. These levels do not exceed the Secondary MCL. Background concentrations in Bloods Creek ranged from 0.96 mg/L to 8.6 mg/L, with an average of 3.6 mg/L, for six samples collected by the Discharger from January 2008 through June 2010.

(2) **Electrical Conductivity.** The electrical conductivity in the storage/polishing reservoir ranged from 128 µmhos/cm to 162 µmhos/cm with a maximum observed annual average concentration of 160 µmhos/cm based on nine samples collected between May 2012 and May 2015. These levels do not exceed the Secondary MCL. The maximum observed annual average background receiving water electrical conductivity was 36 µmhos/cm based on data collected during the discharge seasons based on three samples collected between May 2012 and May 2015.

(3) **Sulfate.** Effluent and receiving water monitoring data for sulfate is not available.

(4) **Total Dissolved Solids.** Effluent and receiving water monitoring data for chloride from the term of Order R5-2011-0053 is not available. The average total dissolved solids concentration in the storage/polishing reservoir was 140 mg/L with concentrations ranging from 38 mg/L to 378 mg/L based on data collected during the discharge seasons from January 2008 through June 2010. These levels do not exceed the Secondary MCL. The background receiving water total dissolved solids ranged from 30 mg/L to 142 mg/L, with an average of 61 mg/L based on data collected during the discharge seasons from January 2008 through June 2010.

Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, due to the Region-wide effort to address salinity in the Central Valley, this Order includes a requirement to continue to implement a salinity evaluation and minimization plan. Also water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent.

ii. **Iron & Manganese**

(a) **WQO.** The Secondary MCLs – Consumer Acceptance Limits for iron and manganese are 300 µg/L and 50 µg/L, respectively. These limits are used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.

(b) **RPA Results.**

As discussed in section IV.C.2.b, above, effluent and receiving water data used to conduct the RPA in the previous Order has been used for the RPA for most constituents in this Order, because a discharge to Bloods Creek did not occur during the previous permit term and no additional data is available. The receiving water dataset for iron and manganese consists of 8 samples collected in Bloods Creek between 15 January and 16 June 2010. However, the sample collected 15 January 2010 had been

determined to not be representative of the water quality in Bloods Creek and has been removed from the dataset. Although the laboratory report does not indicate any QA/QC anomalies and the flows in the Bloods Creek were normal, other water quality parameters indicate possible sample contamination and/or unusual ambient conditions.

The table below includes the iron and manganese data collected in Bloods Creek during the 2010 discharge season, along with other water quality parameters. The 15 January 2010 iron and manganese concentrations are substantially higher than the remaining sample results. Furthermore, the turbidity, hardness, and electrical conductivity (EC) measured on the same day is very different than the rest of the dataset, indicating unusual conditions in the creek or sample contamination. Therefore, the Central Valley Water Board finds that the 15 January 2010 sample is not representative of the ambient conditions and has used its discretion to remove the data from the RPA dataset.

Bloods Creek Iron and Manganese data for 2010

Date	Iron (ug/L)	Manganese (ug/L)	Turbidity (NTU)	Hardness (mg/L as CaCO3)	EC (umhos/cm)
1/15/2010	19100	4280	18	91	251
2/24/2010	650	75	1.4	36	61.9
4/2/2010	83	14	0.3	20	42.3
4/21/2010	59	9.2	1	20	35.8
5/5/2010	75	<20	0.7	20	29.9
6/2/2010	<50	<20	0.5	14	26.5
6/15/2010	57	<20	--	12	29.9
6/16/2010	<50	<20	--	10	27.2

RPA Results. For priority pollutants, the SIP dictates the procedures for conducting the RPA. Iron and manganese are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for these non-priority pollutant constituents. In this case, Discharge Prohibition III.F requires at all times at least a 20:1 dilution ratio (Bloods Creek flow-to-effluent flow). With regards to the reasonable potential analysis, federal regulations at 40 CFR § 122.44(d)(1)(ii), allows, when appropriate, the dilution of the effluent in the receiving water to be considered. A minimum 20:1 dilution is available and has been considered in the RPA for iron and manganese.

For conducting the RPA, U.S. EPA recommends using a mass-balance approach to determine the expected critical downstream receiving water concentration using a steady-state approach[1]. This downstream receiving water concentration is then compared to the applicable water quality

[1] U.S. EPA NPDES Permit Writers' Course (EPA 833-B-97-001 rev. October 2009)

objectives to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion. This approach allows assimilative capacity and dilution to be factored into the RPA. This U.S. EPA recommended approach has been used for iron and manganese. The critical downstream receiving water concentration is calculated using the following equation:

$$C_r = \frac{Q_s C_s + Q_d C_d}{Q_s + Q_d}$$

Where:

Q_s = Critical stream flow

Q_d = Critical effluent flow

C_s = Critical upstream pollutant concentration

C_d = Critical effluent pollutant concentration

C_r = Critical downstream receiving water pollutant concentration

As described above, this Order requires at least a 20:1 dilution ratio, therefore, for purposes of conducting the RPA the critical stream flow (Q_s) has been set to 20 MGD and the critical effluent flow (Q_d) has been set to 1 MGD.

Title 22 requires compliance with the Secondary MCLs for iron and manganese based on an annual average concentration, therefore, a critical effluent pollutant concentration, C_d, has been established as the projected annual average effluent concentration (i.e., 2313 µg/L and 511 µg/L, for iron and manganese, respectively). The projected annual average effluent concentrations were determined based on effluent storage reservoir data collected from 2012-2015 and projected using statistics recommended in the TSD for statistically projecting effluent concentrations (i.e., Table 3-1 of the TSD using the 95% probability basis and 95% confidence level). Since the Secondary MCL for iron and manganese is a long-term objective and was derived from human welfare considerations (e.g., taste, odor, laundry staining), a critical upstream pollutant concentration, Cs, was determined using the ambient background concentration as the maximum observed annual average concentration for iron and manganese in the storage/polishing reservoir (i.e., 139 µg/L and 20 µg/L for iron and manganese, respectively).

<u>Iron</u>

Q_s = 20 MGD

Q_d = 1 MGD

C_s = 139 µg/L

C_d = 2313 µg/L

$$C_r = \frac{(20\ MGD \times 139\ \mu g/L\ ) + (1\ MGD \times 2313\ \mu g/L)}{(20\ MGD + 1\ MGD)} = 243\ \mu g/$$

Manganese

Q_s = 20 MGD

Q_d = 1 MGD

C_s = 20 µg/L

C_d = 511 µg/L

$$C_r = \frac{(20\ MGD \times 20\ \mu g/L\ ) + (1\ MGD \times 511\ \mu g/L)}{(20\ MGD + 1\ MGD)} = 43\ \mu g/$$

The critical downstream receiving water iron and manganese concentrations, C_r, are 243 ug/L and 43 ug/L, respectively, which do not exceed the Secondary MCLs. Therefore, the discharge does not have reasonable potential for iron manganese and the WQBELs for these constituents have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

b. **Constituents with No Data or Insufficient Data.** Reasonable potential cannot be determined for the following constituents because effluent data are limited or ambient background concentrations are not available. The Discharger is required to continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring.

i. **pH**

(a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5.*"

Due to apparent naturally occurring low pH in Bloods Creek below the water quality objective, Order R5-2011-0053 required the Discharger to conduct a study to evaluate the appropriate water quality objectives for pH in Bloods Creek. The Discharger concluded in a 9 November 2012 pH study report that under the conditions in which the discharge may occur, the pH levels in Bloods Creek were within the 6.5-8.5 Basin Plan objectives. The low pH levels measured prior to the adoption of Order R5-2011-0053 were observed during low creek flows between August and January. Therefore, the Discharger concluded, and the Central Valley Water Board staff concur, that the Basin Plan objectives are applicable to Bloods Creek, particularly during the period in which a discharge is allowed.

(b) **RPA Results.** 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 Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL's are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires 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. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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)

The Facility is a POTW that treats domestic wastewater. The pH of the storage/polishing pond ranged from 6.82 to 10.76 based on seven samples collected between May 2012 and May 2015. The Discharger's 2012 study evaluated whether the discharge had reasonable potential to cause or contribute to an exceedance of the Basin Plan objectives in Bloods Creek. Based on the mixing with a minimum 20:1 dilution, the Discharger determined the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan objectives. However, the study did not consider alkalinity for the evaluation, which is needed to adequately evaluate the pH impacts. Therefore, this Order requires the Discharger to re-evaluate the pH impacts of the discharge as part of the dilution study update. This information is needed to conduct the reasonable potential analysis for pH.

c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, chlorine residual, copper, lead, nitrate plus nitrite, pH, settleable solids, and total coliform organisms. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Aluminum**

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.

(a) **WQO.** The State Water Board, Division of Drinking Water (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 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 Bloods Creek, 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 the following two toxicity tests. All test waters contained hardness at 12 mg/L as $CaCO_3$.

(1) 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.

(2) 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 water effects ratio 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] Effluent and Bloods Creek monitoring data indicate that the pH and hardness values are similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below. The pH of Bloods Creek, the receiving water, ranged from 5.2 to 8.1. The hardness of Bloods Creek ranged from 11 mg/L to 26 mg/L, which is above the conditions, and thus less toxic, than the tests used to develop the chronic criterion.

Parameter	Units	Test Conditions for Applicability of Chronic Criterion	Storage/Polishing Reservoir	Receiving Water
pH	standard units	6.0 – 6.5	6.82 – 10.76	5.2 – 8.1[1]
Hardness, Total (as $CaCO_3$)	mg/L	12	20 – 28	11 – 26
Aluminum, Total Recoverable	µg/L	87.2 - 390	51 – 200	21

Local Environmental Conditions and Studies. Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. As shown in the following table, all EC_{50}[2] toxicity study result

[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 incapitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC_{50} is a point estimate of the toxicant concentration

values are at concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in these surface waters is less toxic (or less reactive) to aquatic species then 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 may be overly stringent but may be applicable to Bloods Creek.

Central Valley Region Site-Specific Aluminum Toxicity Data

Discharger	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
***Oncorhynchus mykiss* (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
***Ceriodaphnia dubia* (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
***Daphnia magna* (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

Although the pH and hardness conditions in Bloods Creek may be similar to those described in the table above, the Central Valley Water Board finds that for this case additional toxicity studies are necessary to determine if the chronic criterion of 87 µg/L is not applicable in Bloods Creek.

(b) **RPA Results.** The maximum aluminum concentration in the storage/polishing reservoir was 200 µg/L based on five samples collected between May 2012 and May 2015. The maximum observed upstream receiving water concentration was 21 µg/L based on monitoring data collected between May 2012 and May 2015. Therefore, aluminum in the

that would cause an observable adverse effect in 50 percent of the test organisms. The EC_{50} is used in toxicity testing to determine the appropriate chronic criterion.

discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC criteria.

(c) **WQBEL's.** The receiving water contains assimilative capacity for aluminum; therefore, as described in section IV.C.2.c of this Fact Sheet, a dilution credit of 5:1 was allowed in the development of the WQBEL's for aluminum. This Order contains a final AMEL and AWEL for aluminum of 340 µg/L and 590 µg/L, based on the NAWQC chronic criterion.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 200 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Ammonia**

(a) **WQO.** 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 the Discharger 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 calculated assuming mussels present using the 2013 Criteria. The Discharger submitted a letter to the Central Valley Water Board indicating their participation in the Central Valley Clean Water Association Freshwater Collaborative Mussel Study. 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

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

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 Plan's 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. Because Bloods Creek has a beneficial use of cold freshwater habitat and early fish life stages are likely present during the permitted period of discharge, the recommended criteria for waters where salmonids and early life stages are present were used.

In order to protect against the worst-case short-term exposure of an organism, the maximum observed upstream receiving water pH value of 8.13 was used to derive the acute criterion. The resulting acute criterion is 4.46 mg/L.

A chronic criterion was calculated for each day when paired temperature data and pH were measured using upstream receiving water data for temperature and pH. Rolling 30-day average criteria were calculated from upstream receiving water data using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The most stringent 30-day CCC was 2.01 mg/L (as N). The 4-day average concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 2.01 mg/L (as N), the 4-day average concentration that should not be exceeded is 5.03 mg/L (as N).

(b) **RPA Results.** The Facility is a POTW that treats 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.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires 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. Ammonia is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has

used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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 discharge has reasonable potential for ammonia and WQBEL's are required.

(c) **WQBEL's.** The Central Valley Water Board calculates WQBEL's in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTA's corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and AWEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures.

The receiving water contains assimilative capacity for ammonia; therefore, as described in section IV.C.2.c of this Fact Sheet, a dilution credit of 5:1

was allowed in the development of the WQBEL's for ammonia. This Order contains a final AMEL and AWEL for ammonia of 13 mg/L and 23 mg/L, based on the NAWQC chronic criterion.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 2.6 mg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Chlorine Residual**

(a) **WQO.** 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 Plan's narrative toxicity objective.

(b) **RPA Results.** The concentrations of chlorine used to disinfect wastewater are high enough to harm aquatic life and violate the Basin Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore does exist and effluent limits are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires 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. Chlorine is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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 Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. Although the Discharger has installed a dechlorination system, the existing 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.

(c) **WQBEL's.** The TSD contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to AMEL's and MDEL's based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 mg/L and 0.019 mg/L, respectively, based on U.S. EPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) **Plant Performance and Attainability.** The Facility provides dechlorination. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iv. **Copper**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for calculating the criteria. As described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for copper in the effluent are 3.1 µg/L and 2.4 µg/L, respectively, as total recoverable.

(b) **RPA Results.** The MEC for copper was 3.6 µg/L (as total recoverable) based on seven samples collected between May 2012 and May 2015. The maximum observed upstream receiving water copper concentration was 0.34 µg/L (as total recoverable) based on three samples collected between May 2012 and May 2015. Therefore, copper in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) **WQBEL's.** The receiving water contains assimilative capacity for copper; therefore, as described in section IV.C.2.c of this Fact Sheet, a dilution credit of 5:1 was allowed in the development of the WQBEL's for copper. This Order contains a final AMEL and MDEL for copper of 8.4 µg/L and 17 µg/L, based on the CTR aquatic life criteria.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 3.6 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Lead**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for calculating the criteria. As described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for lead in the effluent are 9.9 µg/L and 0.38 µg/L, respectively, as total recoverable.

(b) **RPA Results.** The MEC for lead was 0.44 µg/L (as total recoverable) based on seven samples collected between May 2012 and May 2015. The maximum observed upstream receiving water lead concentration was 0.01 µg/L (as total recoverable) based on three samples collected between May 2012 and May 2015. Therefore, lead in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) **WQBEL's.** The receiving water contains assimilative capacity for lead; therefore, as described in section IV.C.2.c of this Fact Sheet, a dilution credit of 5:1 was allowed in the development of the WQBEL's for lead. This Order contains a final AMEL and MDEL for lead of 1.8 µg/L and 3.7µg/L, based on the CTR aquatic life criteria.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 0.44 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vi. **Nitrate and Nitrite**

(a) **WQO.** 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).

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, if untreated, will be harmful to fish and will violate the Basin Plan's 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.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires 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. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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. 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.

(c) **WQBEL's.** This Order contains an AMEL and AWEL for nitrate plus nitrite of 10 mg/L and 17 mg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 0.69 mg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vii. **Pathogens**

(a) **WQO.** 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.

On 27 September 2005, a comment letter from Joseph Spano of DDW recommended tertiary treatment for this discharge to protect waters reaching the south delta and San Joaquin River via its tributaries. Consequently, Order R5-2005-0139 was adopted with late revisions that included Title 22-level limitations for discharges to the storage/polishing reservoir, including a 7-day median limitation for total coliform organisms of 2.2 MPN/100 mL. Order R5-2005-0139 also included effluent limitations for surface water discharges to Bloods Creek consisting of a 7-day median effluent limitation for total coliform organisms of 23 MPN/100 mL.

On 1 February 2011, the Discharger submitted updated water balance projections to characterize potential discharges to Bloods Creek under various precipitation water year assumptions. WDR Order 5-01-208, which regulates the discharge to land, includes an influent flow limit of 100,000 gallons per day (gpd) as an annual average. Based on this limitation, the Discharger provided water balances to determine the climatic conditions that would result in a discharge to Bloods Creek. Based on the water balances, the Discharger does not anticipate a discharge to Bloods Creek until the water precipitation year approaches or exceeds a 1-in-25 year precipitation level. The Discharger developed water balances for several water year precipitation events. During wet years when a discharge is required, the water balances showed that the storage/polishing reservoir is predominantly rain/snowmelt. The storage/polishing reservoir contains at most only 30 percent wastewater under these conditions.

Based on updated information, DDW provided an updated recommendation to the Central Valley Water Board in a letter dated 1 March 2011 stating that they would forgo the tertiary treatment

recommendation provided that certain requirements are included in this Order. This Order addresses the recommendations from DDW as follows:

(1) Allow discharge only as a last resort – In order to assure that discharges to Bloods Creek occur only when necessary, WDR Order 5-01-208 requires the Discharger to maximize land application of the effluent and, and this Order prohibits discharges to Bloods Creek between 1 July and 31 December.

(2) Shorten the allowed discharge season – Consistent with Orders. R5-2005-0139 and R5-2011-0053, this Order retains the discharge season of 1 January through 30 June. Although the Central Valley Water Board recognizes that discharges to Bloods Creek, when necessary, will most likely occur towards the end of the discharge season (e.g., May through June), the Central Valley Water Board is concerned that shortening the discharge season may inhibit the Discharger from discharging when necessary if severe wet weather or snowmelt occurs earlier in the discharge season. However, other provisions established by this Order will ensure discharges to Bloods Creek occur only when necessary and when diluting flows in Bloods Creek are greatest.

(3) Require an I/I study – WDR Order 5-01-208 requires the Discharger to maximize land application of the effluent, and requires the Discharger submit an annual report demonstrating land applicant is maximized and discuss the Discharger's continued implementation of water conservation measures and an I/I reduction program.

(4) Require an evaluation of alternatives to increase land disposal capacity – Order R5-2011-0053 required the Discharger to provide an evaluation of additional alternatives to increase land disposal capacity. The Land Disposal Alternatives Evaluation report was submitted on 8 August 2012. The evaluated alternatives included obtaining land from: a) USFS; b) voluntary lease or purchase; and c) condemnation. None of these alternatives are feasible because: a) the Discharger is under the maximum allowable acreage available for effluent disposal purposes via USFS Special Use Permits; b) no private parties have come forward at this time to sell or lease land; and c) the cost of increasing the Discharger's effluent discharge to surface waters would have to be evaluated first. Therefore, increasing the effluent disposal of existing land it is unlikely. Thus, the Discharger proposed strategy is to maximize the ability to store "excess effluent" resulting from a wet year or a series of wet years, rather than discharging all or a portion of that "excess effluent" to Bloods creeks.

(5) Require water quality sampling of the storage/polishing reservoir during the discharge season – Section VI.A.2 of the Monitoring and Reporting Program (Attachment E) requires the Discharger to monitor the storage/polishing reservoir at Monitoring Location EFF-001 if a discharge to Bloods Creek does not occur within the discharge season (1 January to 30 June) during the permit term. The Discharger is required to collect samples during conditions under

which a discharge to Bloods Creek is most likely to occur (i.e., during snowmelt) in May or June.

(6) Require notification of DDW whenever a discharge is planned – The special provision at section VI.C.6.a of this Order requires the Discharger to notify the Central Valley Water Board, the Stockton East Water District, and DDW by telephone prior to initiating a discharge to Bloods Creek.

There are no numeric water quality objectives for pathogens applicable to the receiving water for the protection of MUN. The applicable narrative water quality objective that applies to surface waters is the bacteria objective in the Basin Plan, which states, "*In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.*"

(b) **RPA Results.** Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of Bloods Creek. This Order contains a discharge prohibition that requires a 20:1 dilution for discharge to Bloods Creek. Therefore, the DDW requirements are applicable to the discharge.

(c) **WQBEL's.** Pursuant to guidance from DDW, 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. These coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways.

(d) **Plant Performance and Attainability.** Analysis of the effluent data indicates that compliance with these effluent limitations is feasible.

viii. **Settleable Solids**

(a) **WQO.** For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses*." Order R5-2011-0053 included an AMEL and MDEL of 0.1 ml/L and 0.2 ml/L, respectively.

(b) **RPA Results.** The discharge of secondary treated wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids.

(c) **WQBEL's.** This Order contains an AMEL and AWEL for settleable solids. Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that settleable solids were not detected in the storage/polishing reservoir. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

a. This Order includes WQBEL's for aluminum, ammonia, chlorine residual, copper, lead, nitrate plus nitrite, pH, settleable solids, and total coliform organisms. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$ECA = C + D(C - B)$ *where C>B, and*
$ECA = C$ *where C≤B*

where:

ECA = effluent concentration allowance
D = dilution credit
C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECA's based on MCL's, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. **Basin Plan Objectives and MCL's.** For WQBEL's based on numeric Basin Plan objectives (e.g., pH), the objective is applied directly as the effluent limitation. For non-priority pollutants based on Primary MCL's (e.g., nitrate plus nitrite), the Primary MCL is applied directly as an AMEL and an AWEL is calculated using an AWEL/AMEL multiplier (see Attachment H). For non-priority pollutants based on Secondary MCL's, an AMEL is calculated by multiplying the Secondary MCL by the AMEL multiplier from the SIP and an AWEL is calculated by multiplying the Secondary MCL by the MDEL multiplier from the SIP (see Attachment H).

d. **Aquatic Toxicity Criteria.** WQBEL's 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.

e. **Human Health Criteria.** WQBEL's based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to ECA and a statistical multiplier was used to calculate the MDEL.

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

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

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

where:

$mult_{AMEL}$ = 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 $LTA_{chronic}$

Summary of Water Quality-Based Effluent Limitations
Discharge Point 001

Table F-10. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Priority Pollutants						
Copper, Total Recoverable	µg/L	8.4	--	17	--	--
Lead, Total Recoverable	µg/L	1.8	--	3.7	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	340	590	--	--	--
Ammonia Nitrogen, Total (as N)	mg/L	13	23	--	--	--
	lbs/day[1]	270	480	--	--	--
Chlorine, Total Residual	mg/L	--	0.011[2]	0.019[3]	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	17	--	--	--
Settleable Solids	ml/L	0.1	0.2	--	--	--
Total Coliform Organisms	MPN/100 mL	--	23[4]	240[5]	--	--

1 Mass limits are based on 1.0 MGD for average monthly and average weekly effluent limitations and 2.5 MGD for maximum daily effluent limitations.
2 Applied as a 4-day average effluent limitation.
3 Applied as a 1-hour average effluent limitation.
4 Applied as a 7-day median effluent limitation.
5 Not to be exceeded more than once in any 30-day period.

5. Whole Effluent Toxicity (WET)

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

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) The Basin Plan also states that, *"…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…*".

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 discharge, 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 Plan's 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.*" Consistent with Order R5-2011-0053, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00.) Chronic toxicity testing was not conducted during the term of Order R5-2011-0053. Two chronic toxicity tests

were conducted in June 2007 and July 2009. The June 2007 testing event did not indicate that the discharge was toxic. The July 2009 testing event did indicate impacts to *Ceriodaphnia dubia* reproduction. However, the July 2009 testing event may not be representative of potential discharge conditions, as it was conducted outside the discharge period of 1 January through 30 June, there was minimal flow in Bloods Creek, the influent sampler was used to collect samples, and the storage/polishing reservoir was experiencing an algae bloom that had to be filtered from the samples. Therefore, adequate chronic toxicity data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring once during the permit term for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for Toxicity Reduction Evaluation (TRE) initiation if toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 C.F.R. section 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, the Special Provision contained at VI.C.2.a of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the

[1] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

numeric toxicity monitoring trigger, the Discharger is required to initiate a TRE in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

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 CF.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, BOD_5, 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.

Consistent with Order R5-2011-0053, mass-based effluent limitations were calculated based upon the permitted average monthly effluent flow (for AMEL's and AWEL's) and maximum daily effluent flow (for MDEL's) in section IV.A.1.a of this Order.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires AMEL's and AWEL's for POTW's unless impracticable. For copper and lead, AWEL's have been replaced with MDEL's to be consistent with the SIP. For BOD_5, 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 in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for iron, manganese, aluminum, ammonia, copper, and lead. The effluent limitations for these pollutants are less stringent than those in Order R5-2011-0053. This relaxation 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 water quality-based effluent limits "*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.

Bloods Creek is considered an attainment water for iron, manganese, aluminum, ammonia, copper, and lead because the receiving water is not listed as impaired on the 303(d) list for this constituent.[1] As discussed in section IV.D.4, below, relaxation of the effluent limits complies with federal and state antidegradation requirements. Thus, relaxation of the effluent limitations for iron, manganese, aluminum, ammonia, copper, and lead from Order R5-2011-0053 meets the exception in CWA section 303(d)(4)(B).

b. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. 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.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2011-0053 was issued indicates that less stringent effluent limitations for aluminum, ammonia, copper, and lead based on available dilution credits satisfy requirements in CWA section 402(o)(2). The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

i. **Aluminum.** Based on the Discharger's June 2015 mixing zone study and receiving water monitoring data collected between May 2012 and May 2015, a mixing zone and dilution credit of 5:1 is applicable and the receiving water contains assimilative capacity for aluminum, as discussed in section IV.C.2.c of this Fact Sheet. Therefore, this Order includes less stringent effluent limitations for aluminum based on the available dilution.

ii. **Ammonia.** Based on the Discharger's June 2015 mixing zone study and receiving water monitoring data collected between May 2012 and May 2015, a mixing zone and dilution credit of 5:1 is applicable and the receiving water contains assimilative capacity for ammonia, as discussed in section IV.C.2.c of this Fact Sheet. Therefore, this Order includes less stringent effluent limitations for ammonia based on the available dilution.

iii. **Copper.** Based on the Discharger's June 2015 mixing zone study and receiving water monitoring data collected between May 2012 and May 2015, a mixing zone and dilution credit of 5:1 is applicable and the receiving water contains assimilative capacity for copper, as discussed in section IV.C.2.c of

[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.

this Fact Sheet. Therefore, this Order includes less stringent effluent limitations for copper based on the available dilution.

iv. **Lead.** Based on the Discharger's June 2015 mixing zone study and receiving water monitoring data collected between May 2012 and May 2015, a mixing zone and dilution credit of 5:1 is applicable and the receiving water contains assimilative capacity for lead, as discussed in section IV.C.2.c of this Fact Sheet. Therefore, this Order includes less stringent effluent limitations for lead based on the available dilution.

4. Antidegradation Policies

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. 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 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.

This Order relaxes the effluent limitations for aluminum, ammonia, copper, and lead. This Order allows acute and chronic mixing zones for these constituents in accordance with the Basin Plan, the SIP, and U.S. EPA's Water Quality Standards handbook, 2d Edition (updated July 2007) and TSD. As discussed in Finding IV.C.2.c of this Fact Sheet, the mixing zone complies with all applicable requirements and will not be adverse to the purpose of the state and federal antidegradation policies.

This Order also removes the effluent limitations for iron and manganese. The removal of the effluent limitations will not result in a decrease in the level of treatment or control or a reduction of water quality. Therefore, the Central Valley Water Board finds that the removal of the effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, BOD_5, and TSS. Restrictions on these pollutants are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to 30 May 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1).

Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

Summary of Final Effluent Limitations
Discharge Point 001

Table F-11. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	1.0	--	2.5	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	40	60	--	--	CFR
	lbs/day[2]	630	830	1,250	--	--	
	% Removal	85	--	--	--	--	
pH	standard units	--	--	--	6.0	9.0	CFR
Total Suspended Solids	mg/L	30	40	60	--	--	CFR
	lbs/day[2]	630	830	1,250	--	--	
	% Removal	85	--	--	--	--	
Priority Pollutants							
Copper, Total Recoverable	µg/L	8.4	--	17	--	--	CTR
Lead, Total Recoverable	µg/L	1.8	--	3.7	--	--	CTR
Non-Conventional Pollutants							
Aluminum, Total Recoverable	µg/L	340	590	--	--	--	NAWQC
Ammonia Nitrogen, Total (as N)	mg/L	13	23	--	--	--	NAWQC
	lbs/day[2]	270	480	--	--	--	
Chlorine, Total Residual	mg/L	--	0.011[3]	0.019[4]	--	--	NAWQC
Nitrate Plus Nitrite (as N)	mg/L	10	17	--	--	--	MCL
Settleable Solids	ml/L	0.1	0.2	--	--	--	BP
Total Coliform Organisms	MPN/100 mL	--	23[5]	240[6]	--	--	Title 22

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

[1] DC – Based on the design capacity of the Facility.
CFR – Based on secondary treatment standards contained in 40 C.F.R. part 133.
BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
SEC MCL – Based on the Secondary Maximum Contaminant Level.
MCL – Based on the Primary Maximum Contaminant Level.
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

[2] Mass limits are based on 1.0 MGD for average monthly and average weekly effluent limitations and 2.5 MGD for maximum daily effluent limitations.

[3] Applied as a 4-day average effluent limitation.

[4] Applied as a 1-hour average effluent limitation.

[5] Applied as a 7-day median effluent limitation.

[6] Not to be exceeded more than once in any 30-day period.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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 Plan. The Basin Plan states that "[t]*he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater – Not Applicable

VI. 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. **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 TRE. This Order may be reopened to include a numeric or narrative chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

b. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper and lead. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

c. **Dilution/Mixing Zone Study.** This Order requires the Discharger to conduct an updated mixing zone study at receiving water flows that are representative of potential discharge conditions and that meets all of the requirements of Section 1.4.2.2 of the SIP, and to re-evaluate the pH mixing in the Bloods Creek considering alkalinity. Based on the results of the updated mixing zone study, the Central Valley Water Board may reopen this Order to include revised effluent limitations.

d. **Seasonal Discharge Prohibition.** This Order includes Discharge Prohibition III.E prohibiting discharges to Bloods Creek from 1 July to 31 December. The Discharger requested elimination or relaxation of this prohibition to allow operational flexibility in situations such as 1) lowering the effluent storage reservoir whenever Bloods Creek flows are high so as to avoid the possibility of needing to discharge to Bloods Creek away from high flow events, 2) lowering the effluent storage reservoir prior to December 31 to allow for additional wet season storage capacity, and/or 3) surface water discharges beyond July 1 during late season snow-melt conditions. This Discharger believes it would facilitate more intelligent discharge planning, but not more frequent discharges. An antidegradation analysis demonstrating the relaxation of the seasonal discharge prohibition is in compliance with state and federal antidegradation requirements is needed before modifying the seasonal discharge prohibition. If the Discharger submits an adequate antidegradation analysis, the Central Valley Water Board may reopen this Order to reconsider the seasonal discharge prohibition.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic*

substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

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, this provision includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of >1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for chronic whole effluent toxicity. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent. This Order allows a chronic aquatic life mixing zone extending 10 feet downstream of the outfall, so a higher numeric toxicity trigger may be warranted. The Discharger provided a mixing zone study estimating a 5:1 dilution at the edge of the chronic aquatic life mixing zone, which demonstrates there is sufficient hydraulic dilution to allow a numeric toxicity monitoring trigger of up to >4 TUc. However, toxicity can be synergistic and/or additive when the effluent mixes with the receiving water. Therefore, the numeric monitoring trigger may need to be established based on an effluent/receiving water mixture that is less than the available hydraulic dilution to ensure chronic toxicity does not occur outside the mixing zone. Chronic WET testing is needed to demonstrate there is no chronic toxicity outside the approved chronic aquatic life mixing zone. To do this the Discharger must conduct chronic WET testing using the dilution series required in Table E-4 of this Order, which will evaluate the toxicity of the effluent/receiving water mixture at various dilutions. The Executive Officer may authorize the chronic WET trigger be increased to up to >4 TUc provided sufficient information has been submitted by the Discharger.

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

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

See the WET Accelerated Monitoring Flow Chart (Figure F-2), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with 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.

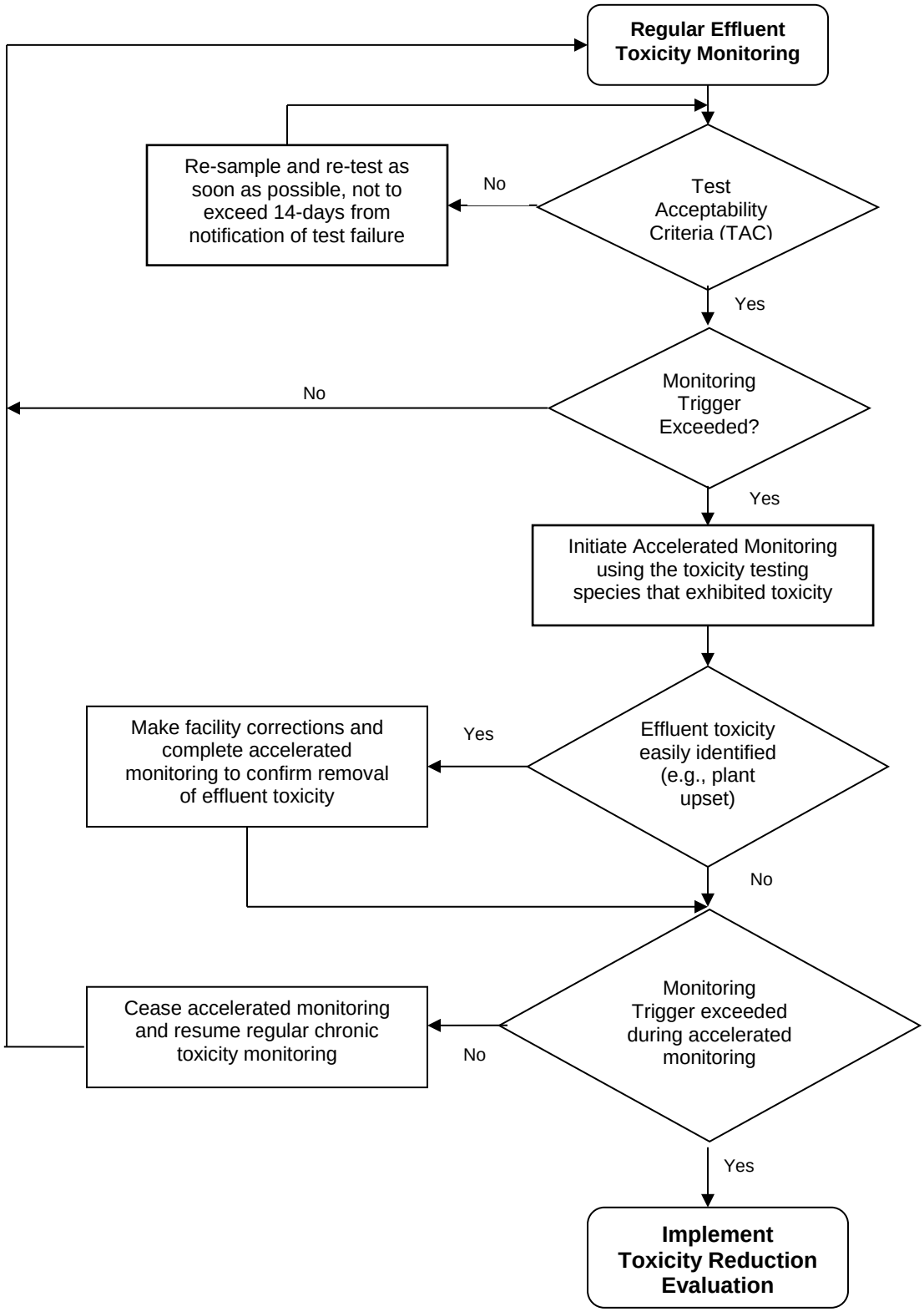
vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA 600/R-92/081, September 1993.

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-2
WET Accelerated Monitoring Flow Chart



b. **Dilution/Mixing Zone Study.** As discussed in section IV.C.2.c of this Fact Sheet, the intent of the Discharger's 2015 mixing zone study was to discharge the surrogate effluent at a dilution ratio of 20:1. However, due to the inaccurate flow measurements the actual dilution ratio of effluent-to-creek flow was about 9:1 during the dye study. An additional study is needed to confirm the mixing and dilution at higher stream flows and at the correct dilution ratio. The Discharger shall perform an updated dilution/mixing zone study, using a dye tracer at a dilution ratio of 20:1 and receiving water flows that are representative of potential discharge conditions. The study shall also evaluate pH mixing/dilution in the receiving water considering the alkalinity of the discharge and receiving water. The pH evaluation is needed to conduct a reasonable potential analysis to determine if the discharge has reasonable potential to cause or contribute to an exceedance of the Basin Plan's water quality objectives for pH in Bloods Creek.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required to be maintained in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Bloods Creek.

4. Construction, Operation, and Maintenance Specifications

a. **Influent Flow.** On 1 February 2011, the Discharger submitted updated water balance projections to characterize potential discharges to Bloods Creek under various precipitation water year assumptions. Based on an influent flow limitation of 100,000 gpd contained in WDR Order 5-01-208, the Discharger provided water balances to determine the climatic conditions that would result in a discharge to Bloods Creek. Based on the water balances, DDW recommended that tertiary treatment is not necessary for discharges to Bloods Creek provided that certain permit requirements are met, including implementation of an I/I program, as the Discharger has attributed the necessity for discharges from the storage/polishing reservoir to excessive Infiltration/Inflow. To ensure that actual conditions in the storage/polishing reservoir that result in discharge to Bloods Creek are similar to those used in the water balance projections upon which DDW's recommendation is based, and to ensure that the Discharger adequately addresses I/I, this Order requires that the annual average daily influent flow not exceed 100,000 gpd.

b. **Maximization of Land Application.** The Discharger has attributed the necessity for discharges from the storage/polishing reservoir to lack of adequate storage capacity, Infiltration/Inflow, consecutive wet years, and heavy snowmelt. WDR Order 5-01-208 requires the Discharger to maximize land application of the effluent and also requires the Discharger to submit an annual report documenting maximization of land application.

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

a. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The Monitoring and Reporting Requirements for the General Order were amended by Water Quality Order WQ 2008-0002-EXEC on 20 February 2008. The 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 General Order. The 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 General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

6. Other Special Provisions

a. **Notification of Discharge.** In a letter dated 1 March 2011, DDW recommended that tertiary treatment is not necessary for discharges to Bloods Creek provided that certain permit requirements are met, including notification to DDW whenever a discharge is planned. Therefore, this Order requires the Discharger to notify the Central Valley Water Board, the Stockton East Water District, and DDW by telephone prior to initiating a discharge to Bloods Creek.

7. Compliance Schedules – Not Applicable

VII. 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 this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequencies for flow (continuous), BOD_5 (monthly), and TSS (monthly) have been reduced from Order R5-2011-0053 to match the monitoring frequency required by WDR Order 5-01-208.

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. Effluent monitoring frequencies and sample types for flow (continuous), BOD_5 (twice per week), pH (continuous), TSS (twice per week), turbidity (twice per week), copper (monthly), lead (monthly), aluminum (monthly), ammonia (twice per week), chlorine (continuous), electrical conductivity (twice per week), iron (monthly), manganese (monthly), settleable solids (twice per week), total coliform organisms (twice per week), hardness (once per month), and temperature (twice per week) have been retained from Order R5-2011-0053 to determine compliance with effluent limitations, where applicable, and characterize the effluent for these parameters.

3. Order R5-2011-0053 required monthly monitoring for nitrate and nitrite. This Order establishes an effluent limitation for nitrate plus nitrite. Therefore, this Order replaces individual monitoring requirements for nitrate and nitrite with monthly monitoring requirements for nitrate plus nitrite.

4. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern once during the first discharge to Bloods Creek that occurs after the effective date of this Order. To ensure adequate data is available to conduct an RPA for the next permit renewal, if no discharge occurs during the permit term, this Order requires sampling at Monitoring Location PND-001 during conditions under which a discharge is most likely to occur (i.e., during snowmelt) in May or June of the fourth year of the permit term. See section VIII.B of the Monitoring and Reporting Program (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

5. 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.*" 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 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 holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II) Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** 96-hour bioassay testing is required once during the discharge season when discharging to Bloods Creek to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required once during the first discharge to Bloods Creek that occurs after the effective date of this Order in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

b. Receiving water monitoring requirements at Monitoring Locations RSW-001 and RSW-002 have been retained for flow (continuous), pH (weekly), dissolved oxygen (weekly), electrical conductivity (weekly), hardness (monthly), temperature (weekly), and turbidity (weekly).

c. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires receiving water monitoring at Monitoring Location RSW-001 for priority pollutants and other constituents of concern once during the permit term, concurrent with effluent monitoring (during the first discharge to Bloods Creek that occurs after the effective date of this Order) or storage/polishing reservoir (during conditions under which a discharge is most likely to occur in May or June of the fourth year of the permit term if no discharge occurs during the permit term). See section VIII.B of the Monitoring and Reporting Program (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. **Water Supply Monitoring**

Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2011-0053, this Order requires annual monitoring for electrical conductivity in the water supply.

2. **Storage/Polishing Reservoir Monitoring**

The discharge to Bloods Creek has not occurred since 1999. Therefore, effluent data is not available when discharging to surface water. In order to have information for the next permit renewal in the event discharges to Bloods Creek do not occur this permit term, this Order requires monitoring of the wastewater in the storage pond. To collect the most representative data, the Discharger conveys wastewater from the storage pond through monitoring location EFF-001 in the same manner in which a discharge to Bloods Creek would occur. However, the wastewater is routed to a ballast pond or returned to the storage pond, so no discharge to Bloods Creek actually occurs. The monitoring in Table E-6 is only required if a discharge to Bloods Creek does not occur during the discharge season. The data collected when a discharge to Bloods Creek is not occurring shall not be used for evaluating compliance with effluent limitations.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for Bear Valley Wastewater Treatment Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit

written comments and recommendations. Notification was provided through posting of a Notice of Public Hearing on 5 May 2016 at the Facility entrance, the Alpine County Courthouse, the Alpine County Administration, and the Bear Valley Post Office. The Notice of Public Hearing was also posted on the Central Valley Water Board's website.

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 Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on **31 May 2016**.

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:	23/24 June 2016
Time:	8:30 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

Interested persons 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 Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the 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 WDR's and NPDES permit should contact the Central Valley Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Dania Jimmerson at (916) 464-4742.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	200	21	87	750[1]	87[2]	--	--	--	200	Yes
Ammonia Nitrogen, Total (as N)	mg/L	2.6	<0.5	2.01	4.46[1]	2.01[2]	--	--	--	--	Yes
Chloride	mg/L	18[4]	8.6[4]	230	860[1]	230[2]	--	--	--	250	No
Copper, Total Recoverable	µg/L	3.6	0.34	2.4	3.1	2.4	1,300	--	--	1,000	Yes
Electrical Conductivity @ 25°C	µmhos/cm	160[5]	36[5]	900	--	--	--	--	--	900	No
Iron, Total Recoverable	µg/L	995[5]	136[4,5]	300	--	--	--	--	--	300	No[6]
Lead, Total Recoverable	µg/L	0.44	0.01	0.38	9.9	0.38	--	--	--	15	Yes
Manganese, Total Recoverable	µg/L	220[5]	20[4,5]	50	--	--	--	--	--	50	No[6]
Nitrate Nitrogen, Total (as N)	mg/L	0.69	0.097[4]	10	--	--	--	--	--	10	Yes[6]
Total Dissolved Solids	mg/L	140[4,5]	61[4,5]	500	--	--	--	--	--	500	No

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

Footnotes:
(1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
(2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(3) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
(4) Represents data collected between 2008 and 2010.
(5) Represents the maximum observed annual average effluent concentration for comparison with the Secondary MCL.
(6) See section IV.C.3 of the Fact Sheet (Attachment F) for a discussion of the RPA results.

ATTACHMENT H – CALCULATION OF WQBEL'S

Human Health WQBEL's Calculations									
Parameter	**Units**	**Criteria**	**Mean Background Concentration**	**Dilution Factor**	**MDEL/AMEL Multiplier**	**AMEL Multiplier**	**AMEL**	**MDEL**	**AWEL**
Nitrate Nitrogen, Total (as N)	mg/L	10	0.097[2]	--	1.73[3]	1.55	10	--	17[4]

1 Calculated by setting the LTA equal to the 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 Maximum background concentration.
3 Represents the AWEL/AMEL multiplier.
4 Calculated by multiplying the AMEL by the AWEL/AMEL multiplier.

Aquatic Life WQBEL's Calculations															
Parameter	**Units**	**Criteria**		**Dilution Factors**		**Aquatic Life Calculations**							**Final Effluent Limitations**		
		CMC	**CCC**	**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]**
Aluminum, Total Recoverable	µg/L	750	87	5	5	0.32	1,411	0.53	220	1.55	2.68	3.11	340	590	--
Ammonia Nitrogen, Total (as N)	mg/L	4.46	2.01	5	5	0.32	8.4	0.78	9.0	1.55	2.68	3.11	13	23	--
Copper, Total Recoverable	µg/L	3.1	2.4	5	5	0.32	5.4	0.53	6.7	1.55	2.68	3.11	8.4	--	17
Lead, Total Recoverable	µg/L	9.9	0.38	5	5	0.32	19	0.53	1.2	1.55	2.68	3.11	1.8	--	3.7

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.