

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

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ORDER R5-2019-0070

NPDES NUMBER. CA0081957

**WASTE DISCHARGE REQUIREMENTS
FOR WHEELABRATOR SHASTA ENERGY COMPANY, INC., SHASTA COUNTY**

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

Table 1. Discharger Information

Discharger	Wheelabrator Shasta Energy Company, Inc.
Name of Facility	Wheelabrator Shasta Energy Company, Inc.
Facility Address	20811 Industry Road, Anderson, CA 96007 Shasta County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Reverse osmosis reject water, boiler blow-down, cooling tower blowdown, equipment condensate, plant maintenance water, dust control water, storm water, and groundwater	40° 25' 49"	122° 16' 32"	Anderson Cottonwood Irrigation District Canal
003	Groundwater, storm water	40° 25' 49"	122° 16' 32"	Anderson Cottonwood Irrigation District Canal

Table 3. Administrative Information

This Order was adopted on:	11 October 2019
This Order shall become effective on:	1 December 2019
This Order shall expire on:	30 November 2024
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:	1-year prior to the Order expiration 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 discharge

I, Patrick Pulupa, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **11 October 2019**.



PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the Wheelabrator Shasta Energy Company, Inc. (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 waste discharge requirements (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 a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDR's in this Order.
- 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, V.B, VI.C.4 and VI.C.6 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 Persons.** 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 Order R5-2015-0078 is 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 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 discharge shall not contain more than 5% leachate (by volume) from the two processed fuel chip piles at any time.
- E.** The discharge of ash, bark, sawdust, wood, debris, or any other such wastes to surface water or surface water drainage courses is prohibited.
- F.** The direct discharge of hazardous or toxic substances, including water treatment chemicals, solvents, or petroleum products (i.e., oil, grease, gasoline, and diesel) to surface waters or groundwater is prohibited.

- G. The direct discharge of domestic wastewater to the underdrain system is prohibited.
- H. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 22, section 66261.1 et seq., is prohibited.
- I. **Flow.** Discharge exceeding an average flow of 4.5 million gallons per day (MGD) is prohibited.

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. Unless otherwise specified compliance shall be 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	Average Monthly Effluent Limitations	Maximum Daily Effluent Limitations	Instantaneous Minimum Effluent Limitations	Instantaneous Maximum Effluent Limitations
Conventional Pollutants					
pH	standard units	--	--	6.5	9.0
Priority Pollutants					
Arsenic	µg/L	10	20	--	--
Non-Conventional Pollutants					
Chlorine, Total Residual	mg/L	0.01	0.02	--	--
Settleable Solids	ml/L	0.1	0.2	--	--

- b. **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;
 - ii. 90%, median for any three consecutive bioassays.
- c. **Electrical Conductivity @ 25°C.** The effluent calendar year annual average electrical conductivity shall not exceed 635 µmhos/cm.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications

1. **Domestic Sewage.** The Discharger is required to properly operate, maintain, and monitor the domestic sewage collection, treatment, and disposal system.
2. Log Deck Spray System
3. Operation of the spray system shall only occur during dry weather periods when evaporation can be maximized, and surface water runoff from the log deck area minimized.
4. Spray shall not be directly applied to logs stored in the application area.
5. Runoff from the log deck spray system shall not discharge to surface waters.
6. The Log Deck Spray System shall be used to the maximum extent practicable to dispose of process fuel pile leachate in conjunction with blending the leachate with process wastewater at a maximum 5% ratio per Discharge Prohibition III.D.

C. Recycling Specifications – Not Applicable**V. RECEIVING WATER LIMITATIONS****A. Surface Water Limitations**

The discharge shall not cause the following in Anderson Cottonwood Irrigation District Canal.

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 Board Resolution No. 68-16 and 40 CFR 131.12.);
 - e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
 - f. Pesticides to be present in concentration in excess of the maximum contaminant levels (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 shall be determined as described in Section VII.C of this Order.
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 and 100 NTUs; nor
 - e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

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

1. Exceed a total coliform organism level of 2.2 MPN/100 mL over any seven-day period.
2. Contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations.
3. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

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 CFR 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. 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.

- o. 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.
- p. 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 (530) 224-4785 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 CFR 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. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- e. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE) or Toxicity Evaluation Study (TES), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions, this Order may be reopened to implement the new provisions.
- f. **Mixing Zone and Dilution Studies.** This Order may be reopened to modify effluent limitations, as appropriate, if the Discharger submits a mixing zone and dilution study demonstrating that dilution credits are appropriate

- g. **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. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- h. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 31 May 2018, as part of the CV-SALTS initiative, the Central Valley Water Board approved Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the Amendments would impose certain new requirements on salt and nitrate discharges. [More information regarding these Amendments](#) can be found at the following link:
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)
If the Amendments ultimately go into effect, this Order may be amended or modified to incorporate any newly-applicable requirements.
2. **Special Studies, Technical Reports and Additional Monitoring Requirements**
- a. **Toxicity Reduction Evaluation Requirements.** This Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.
- i. **TRE Work Plan.** The Discharger shall submit to the Central Valley Water Board a TRE Work Plan for approval by the Executive Officer by the due date in the Technical Reports Table. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with U.S. EPA guidance as discussed in the Fact Sheet (Attachment F, Section VI.B.2.a) and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.
- ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger is 1 TU_c (where TU_c = 100/NOEC). The monitoring trigger is not

an effluent limitation; it is the toxicity threshold above which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection iii, below.

- iii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic whole effluent toxicity result during routine monitoring exceeds the chronic toxicity monitoring trigger, the Discharger shall proceed as follows:
- (a) **Initial Toxicity Check.** If the result is less than or equal to 1.3 TUc (as 100/EC₂₅) AND/OR the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring. Otherwise, proceed to step (b).
 - (b) **Evaluate 6-week Median.** The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. If the 6-week median is greater than 1.3 TUc (as 100/EC₂₅) and the percent effect is greater than 25 percent at 100 percent effluent, proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring.
 - (c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a site-specific TRE or participate in an approved TES as described in the following subsections.
 - (d) **Toxicity Evaluation Study.** If the percent effect is \leq 50 percent at 100 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
 - (e) **Toxicity Reduction Evaluation.** If the percent effect is $>$ 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:

- (1) **Within thirty (30 days)** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
 - **Within thirty (30) days** of Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.

- b. **Anti-Degradation Re-evaluation.** As part of an iterative evaluation of compliance with State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Anti-Degradation Policy*), the Discharger shall submit an Anti-Degradation Re-evaluation with its Report of Waste Discharge. The Anti-Degradation Re-evaluation must use information obtained from the effluent, land discharge, receiving water, and groundwater monitoring to confirm that any surface or groundwater degradation that has occurred as a result of Facility operations is consistent with previously approved degradation and has not resulted in any exceedances of applicable groundwater water quality objectives or in any impacts to beneficial uses.

If the data indicate that exceedances of previously approved degradation or applicable surface or groundwater water quality objectives or impacts to beneficial uses have occurred, the Discharger shall include a work plan (with an implementation schedule) to implement additional treatment or control measures to implement Best Practicable Treatment or Control (BPTC). Determination of background groundwater quality for use in the analysis shall be made using the methods described in Title 27 California Code of Regulations Section 20415(e)(10) or other method approved by the Executive Officer.

In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. The technical report shall be prepared by or under the direction of appropriately qualified professional(s) and shall bear the professional's signature and stamp.

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.

b. Storm Water Pollution Controls

- i. Prior to 15 October of each year, the Discharger shall implement necessary erosion control measures and any necessary construction, maintenance, or repairs of drainage and erosion control facilities.
- ii. The Discharger has prepared a Storm Water Pollution Prevention Plan (SWPPP) containing best management practices to reduce pollutants in the storm water discharges. The Discharger shall review and amend as appropriate the SWPPP whenever there are changes that may affect the discharge of significant quantities of pollutants to surface water, if there are violations of this permit, or if the general objective of controlling pollutants in the storm water discharges has not been achieved. The amended SWPPP shall be submitted prior to 15 October in the year in which it was prepared.
- iii. By 1 July of each year, the Discharger shall submit a Storm Water Annual Report for the previous fiscal year (1 July to 30 June). The report shall be signed in accordance with Standard Provisions V.B and may be submitted using the General Industrial Storm Water Annual Report Form, provided by the State Water Resources Control Board, or in a format that contains equivalent information.

4. Construction, Operation and Maintenance Specifications

- a. Objectionable odors originating at this Facility shall not be perceivable beyond the limits of the property owned by the Discharger.
- b. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes a violation of the Groundwater Limitations of this Order.
- c. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
- d. All conveyance, treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- e. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
- f. The discharge shall not cause degradation of any water supply.
- g. Management of wood fuel stockpiles and ash stockpiles shall not adversely affect groundwater quality.
- h. **Fire and Cooling Water Ponds Operating Requirements**
 - i. The dissolved oxygen content of the East and West Fire Ponds shall not be less than 1.0 mg/L for 16 hours in any 24-hour period.
 - ii. Freeboard shall not be less than one foot (measured vertically to the lowest point of overflow).

5. **Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable**
6. **Other Special Provisions**
 - a. Sludge, Wood Waste, and/or Ash Storage
 - i. Collected screenings, sludge, and other solids removed from liquid wastes, including pond sediments, shall be disposed of in a manner approved by the Executive Officer and consistent with the Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solids Waste, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.
7. **Compliance Schedules – Not Applicable**

VII. COMPLIANCE DETERMINATION

- A. **Instantaneous Minimum and Maximum Effluent Limitation for pH (Section IV.A.1.a).** If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation or higher than the instantaneous maximum effluent limitation for pH, the Discharger will be considered out of compliance for pH for that single sample. Noncompliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of noncompliance with the instantaneous minimum effluent limitation).
- B. **Priority Pollutant Effluent Limitations.** Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4.5 of the SIP, as follows:
 1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
 2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
 - a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
 - b. A sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).
 3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

- a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall not be deemed out of compliance.
- C. Dissolved Oxygen Receiving Water Limitation (Section V.A.5.a-c).** Monthly 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. Monthly 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 the Anderson Cottonwood Irrigation District Canal 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”.
- D. Compliance with Receiving Water Temperature Limitations (Section V.A.15.).** This Order requires the Discharger to collect temperature data in the Anderson Cottonwood Irrigation District Canal and includes a receiving water limitation for temperature. Previous Order R5-2015-0078 allowed the Discharger to determine compliance with the receiving water limitation for temperature at RSW-001 and either RSW-002 or RSW-003. This effectively granted a mixing zone for temperature in the Canal. If the temperature reading at the RSW-002 monitoring location indicates that there is an exceedance of the receiving water limitation for temperature, this Order allows the Discharger to collect a temperature reading at the RSW-003 monitoring location for determining compliance. Thus, this Order effectively carries over the mixing zone granted in previous Order R5-2015-0078.
- E. Turbidity Receiving Water Limitation (Section V.A.17).** Compliance shall be determined using data samples from Monitoring Location RSW-002 and analyzed with data samples for natural turbidity at Monitoring Location RSW-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.

Best Practicable Treatment or Control (BPTC)

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

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

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

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

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

Detected, but Not Quantified (DNQ)

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

Dilution Credit

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

Effect Concentration (EC)

A point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC₂₅ is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms.

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

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

Endpoint

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

Estimated Chemical Concentration

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

Estuaries

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

Inhibition Concentration

Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal biological measurement (e.g., reproduction or growth), calculated from a continuous model (i.e., Interpolation Method). IC25 is a point estimate of the toxic concentration that would cause a 25-percent reduction in a non-lethal biological measurement.

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 measured concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in in 40 C.F.R. part 136, Attachment B.

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.

No-Observed-Effect-Concentration (NOEC)

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

Not Detected (ND)

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

Ocean Waters

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

Percent Effect

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

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

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies,

including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention

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

Satellite Collection System

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

Source of Drinking Water

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

Standard Deviation (σ)

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

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

where:

x is the observed value;

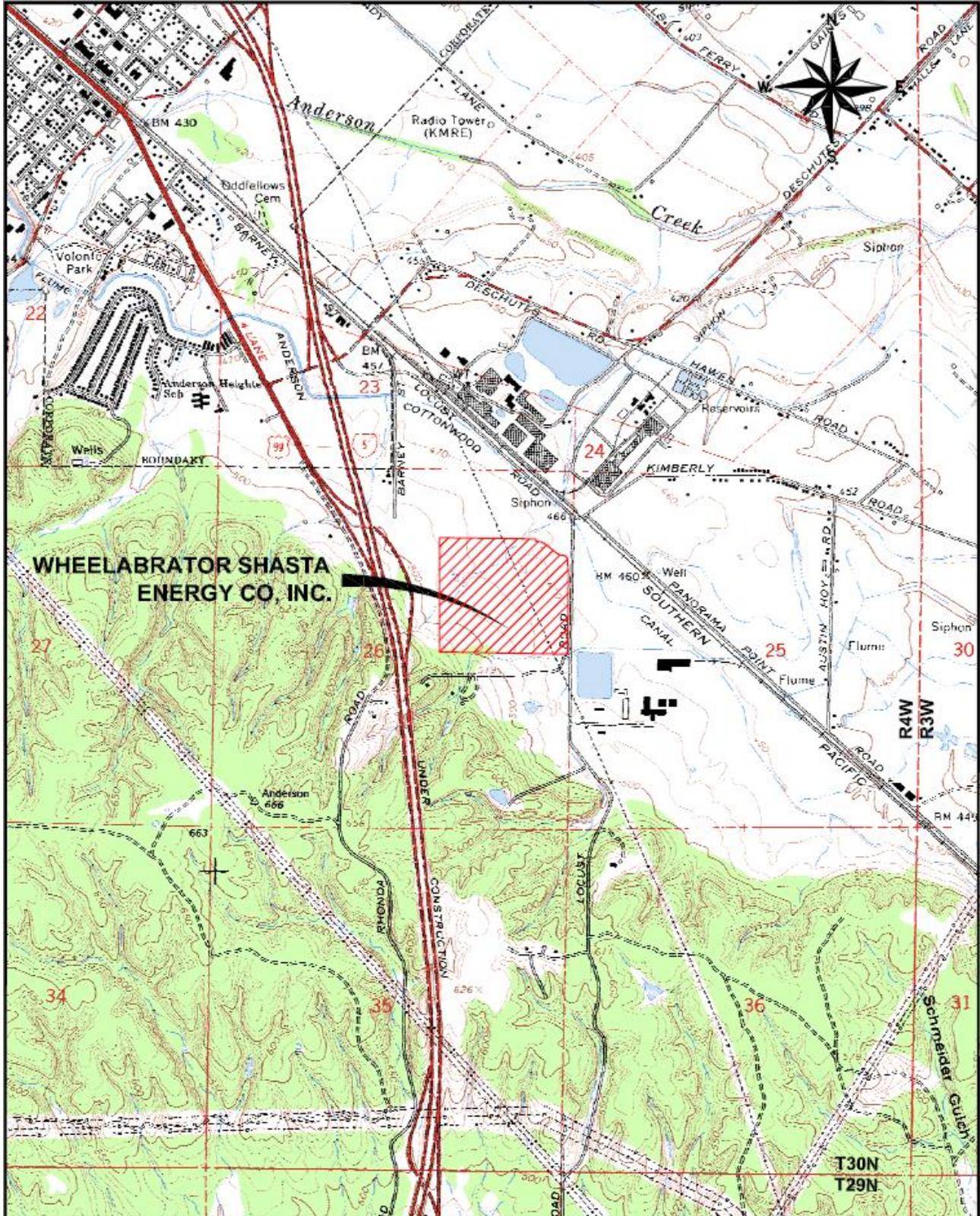
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE)

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

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC

Figure 1: Line Diagram

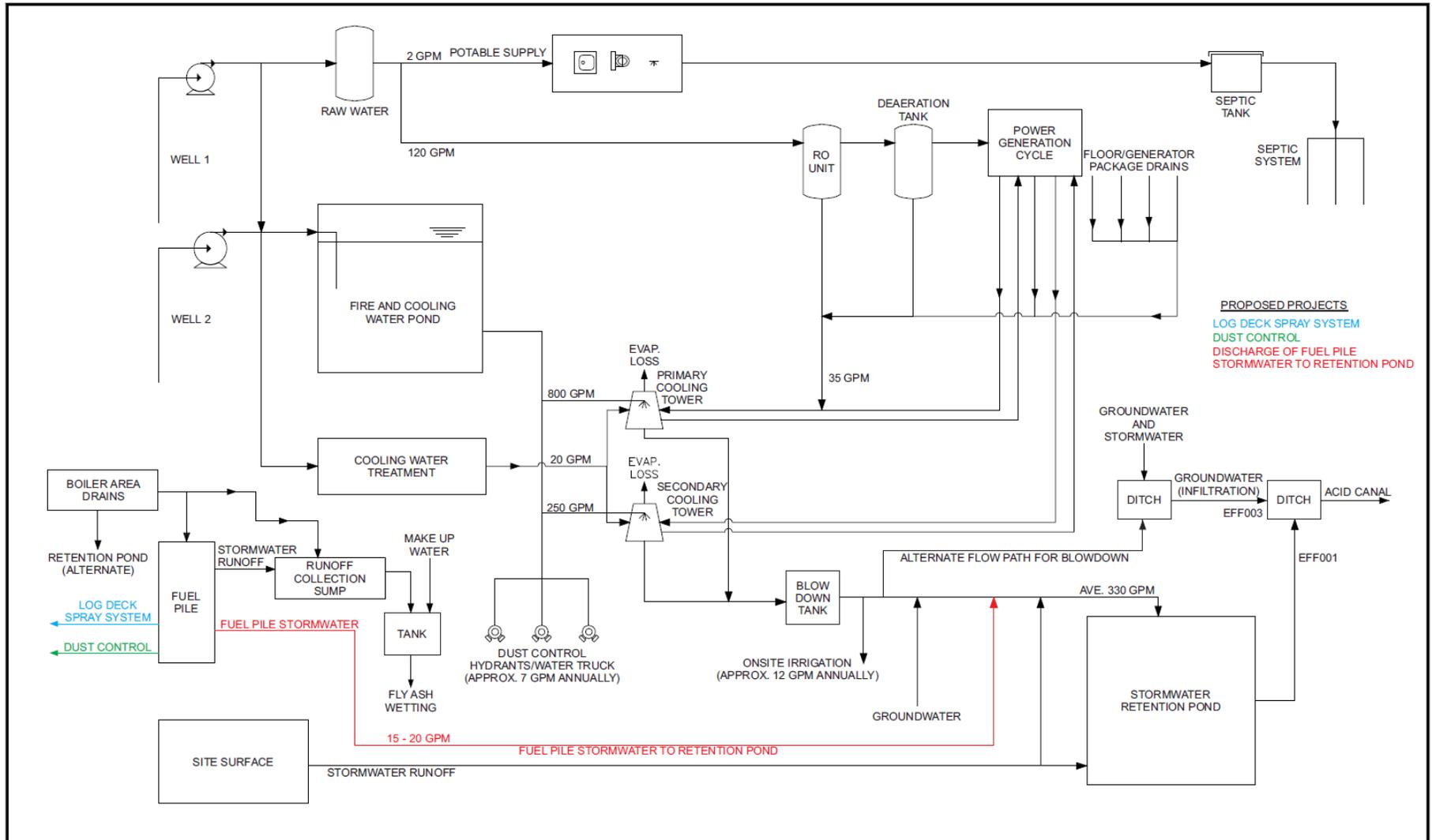
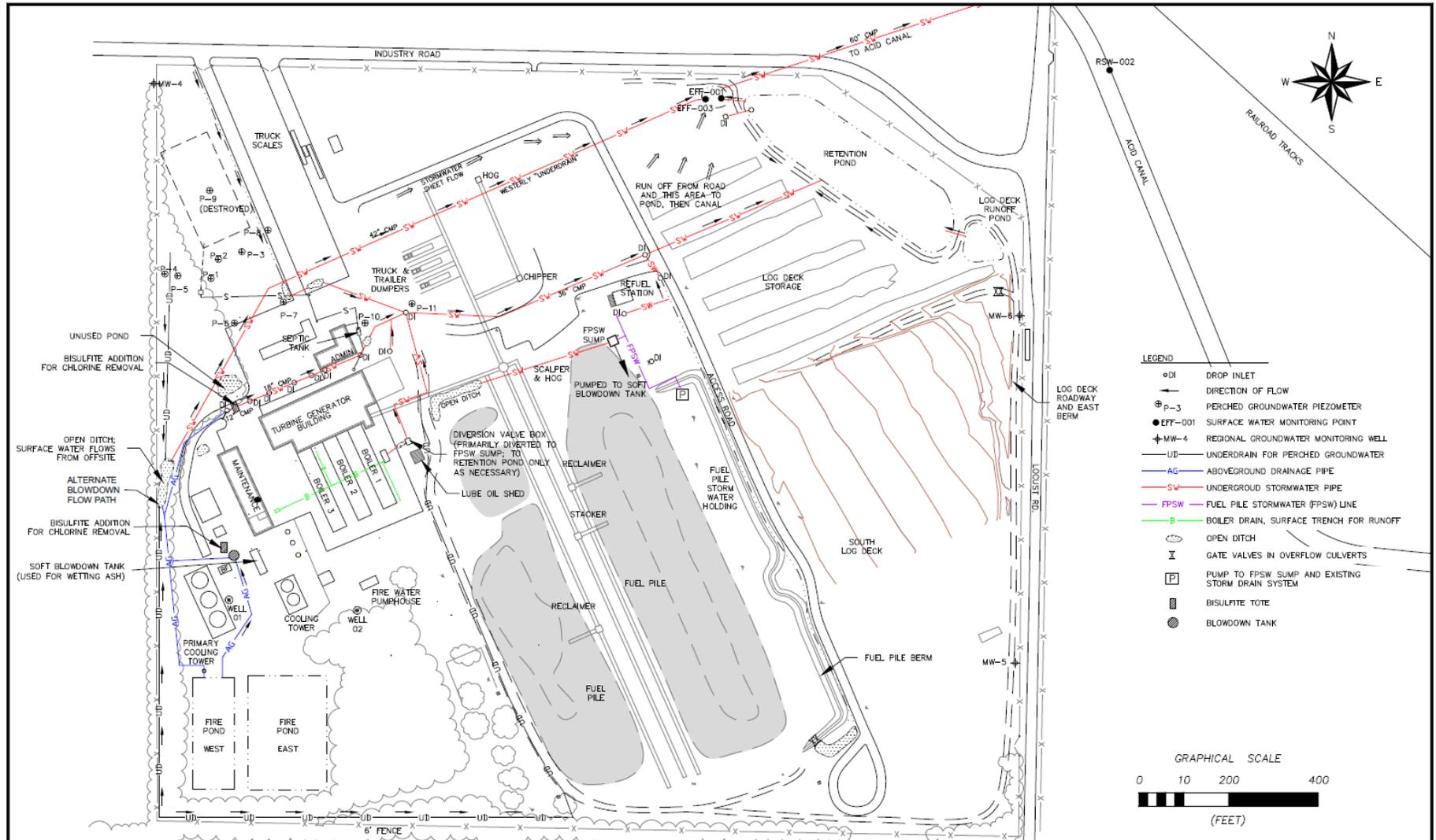


Figure 2: Site Drainage Plan



ATTACHMENT D – STANDARD PROVISIONS**I. STANDARD PROVISIONS – PERMIT COMPLIANCE****A. Duty to Comply**

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor

acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, § 13267, 13383):

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

G. Bypass

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

reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

- c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)
5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i).)
 - b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (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 must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when the method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N or O for the measured pollutant or pollutant parameter, or when:

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and:
 - a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;
 - b. The method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge;

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

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)
- B.** Records of monitoring information shall include:
 1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
 2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
 3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
 4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
 5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
 6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)
- C.** Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):
 1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
 2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING**A. Duty to Provide Information**

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

B. Signatory and Certification Requirements

1. All applications, 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, V.B.5, and V.B.6 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)
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).)

6. Any person providing the electronic signature for such documents described in Standard Provision – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all of the relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e).)

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 the results of monitoring, sludge use, or disposal practices. As of 21 December 2016 all reports and forms must be submitted electronically to the initial recipient, defined in Standard Provisions – Reporting V.J, and comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (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

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

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

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

F. Planned Changes

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

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

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).)

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 of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

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

I. Other Information

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

J. Initial Recipient for Electronic Reporting Data

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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 13350, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS**A. Non-Municipal Facilities**

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Central Valley Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):
 - a. 100 micrograms per liter ($\mu\text{g/L}$) (40 C.F.R. § 122.42(a)(1)(i));
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):
 - a. 500 micrograms per liter ($\mu\text{g/L}$) (40 C.F.R. § 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.
- B.** Final 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 accredited 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 an accredited 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 non-accredited 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 accredited by DDW, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.
- G. The Discharger shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Resources Control Board at the following address:
 State Water Resources Control Board
 Quality Assurance Program Officer
 Office of Information Management and Analysis
 1001 I Street, Sacramento, CA 95814
- H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

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
001	EFF-001	A location where a representative sample of the effluent from the retention pond can be obtained. Latitude: 40° 25' 49" N Longitude: 122° 16' 32" W
003	EFF-003	A location where a representative sample of effluent from the westerly under drain can be obtained. Latitude: 40° 25' 49" N Longitude: 122° 16' 32" W
--	RSW-001	In Anderson Cottonwood Irrigation District Canal, approximately 50 feet upstream from Discharge Point 001 unless this location is within the influence of the backwater condition, in which case samples shall be collected upstream of the discharge point at the first accessible location outside the influence of the backwater condition.
--	RSW-002	In Anderson Cottonwood Irrigation District Canal, approximately 50 feet downstream from Discharge Point 001.
--	RSW-003	In Anderson Cottonwood Irrigation District Canal, at the confluence/potential overflow point into Schmeider Gulch.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	P-1-P-8, P-10, P-11	Leachfield piezometers.
--	MW-4, MW-5, and MW-6	Groundwater monitoring wells.
--	LND-001	A location where a representative sample of wastewater delivered to the landscape irrigation system from the blowdown tank can be obtained.
--	LND-002	A location where a representative sample of process fuel pile leachate can be obtained before being land applied at the Log Deck Spray Area.
--	PND-001	Fire and Cooling Water Pond West.
--	PND-002	Fire and Cooling Water Pond East.

The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.

III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor effluent from the retention pond at Monitoring Location EFF-001 as follows:

When leachate from the processed fuel piles is introduced to the effluent (at not more than 5% by volume per Discharge Prohibition III.D), then the combined flow will be sampled and analyzed for the weekly, monthly, and quarterly constituents listed in the Monitoring and Reporting program below. The weekly constituents shall be monitored each week; the monthly constituents shall be monitored twice per month; and the quarterly constituents shall be monitored twice per quarter. Additionally, 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-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Estimate	1/Day	--
Conventional Pollutants				
Oil and Grease	mg/L	Grab	2/Year ^{1,9}	2
pH	standard units	Grab	1/Week ^{3,8}	2

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Suspended Solids	mg/L	Grab	2/Year ^{1,9}	2
Priority Pollutants				
Alpha-BHC	µg/L	Grab	2/Year ⁴	2,5
Arsenic, Total Recoverable	µg/L	Grab	1/Month ¹¹	2,5
Butyl Benzyl Phthalate	µg/L	Grab	1/Quarter ¹⁰	2,5
Cyanide, Total	µg/L	Grab	1/Quarter ¹⁰	2,5
Priority Pollutants and Other Constituents of Concern	See Section IX.E	See Section IX.E	See Section IX.E	2,5
Non-Conventional Pollutants				
Boron	mg/L	Grab	1/Quarter ¹⁰	2
Chemical Oxygen Demand	mg/L	Grab	2/Year ^{1,9}	2
Chloride	mg/L	Grab	1/Month ¹¹	2
Chlorine, Total Residual	mg/L	Grab	1/Week ⁸	2,6
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week ⁸	2
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Month ¹¹	2
Manganese	µg/L	Grab	1/Quarter ¹⁰	2
Molybdenum	µg/L	Grab	2/Year ⁴	2
Settleable Solids	ml/L	Grab	1/Week ⁸	2
Sulfate	mg/L	Grab	1/Month ¹¹	2
Sulfite	mg/L	Grab	1/Quarter ¹⁰	2
Tannins and Lignins	mg/L	Grab	2/Year ^{1,9}	2
Temperature	°F	Grab	1/Week ^{3,8}	2
Total Dissolved Solids	mg/L	Grab	1/Month ¹¹	2
Turbidity	NTU	Grab	1/Week ^{7,8}	2
Vanadium	µg/L	Grab	2/Year ⁴	2

Table E-2. Notes:

1	Samples shall be collected during the first hour of the first storm water discharge after the dry season (dry season is defined as May through September) and thereafter during the wet season. If samples during the first hour of the first storm water discharge after the dry season cannot be collected for reasons that are beyond the reasonable control of the Discharger (e.g., unsafe sampling conditions), samples shall be collected at the earliest opportunity and the Discharger shall document in the SMRs when this occurs.
2	Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods requested by the Discharger that have been approved by the Central Valley Water Board or the State Water Board.
3	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.
4	Monitoring shall occur once between April and October when water is diverted into the Anderson Cottonwood Irrigation District Canal and once between November and March when there is any upstream flow in the Anderson Cottonwood Irrigation District Canal.
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-14).
6	Total residual chlorine must be monitored using an analytical method that is sufficiently sensitive to measure at the permitted level of 0.01 mg/L.
7	Monitoring shall occur between April and October when water is diverted into the Anderson Cottonwood Irrigation District Canal for irrigation.
8	Monitoring is required during the period when leachate from the processed fuel pile is introduced into the effluent.
9	Monitoring is required up to 2/quarter during the period when leachate from the processed fuel piles is introduced into the effluent.
10	Monitoring is only required up to 2/quarter during the period when leachate from the processed fuel piles is introduced into the effluent.
11	Monitoring is required up to 2/month during the period when leachate from the processed fuel piles is introduced into the effluent.

B. Monitoring Location EFF-003

1. When flows are occurring, the Discharger shall monitor effluent from the westerly under drain at Monitoring Location EFF-003 as follows:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPD	Estimate	1/Day	--
Conventional Pollutants				
pH	standard units	Grab	1/Month	1,3
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	1,3
General Minerals ²	mg/L	Grab	1/Year	1

Table E-3. Notes:

- 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 General minerals include: bicarbonate, carbonate, calcium, chloride, magnesium, nitrate (as N), potassium, silica, sodium, and sulfate.
- 3 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.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

- A. **Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:
 - 1. **Monitoring Frequency** – The Discharger shall perform acute toxicity testing once during the second and once during the third year following the permit effective date.
 - 2. **Sample Types** – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples 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** – The Discharger shall perform chronic toxicity testing once during the second and once during the third year following the permit effective date. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 TUC (as 100/EC₂₅) AND a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring events and perform chronic toxicity testing using the species that exhibited toxicity in order to calculate a median. The optional compliance monitoring events shall occur at least one week apart, and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity.
2. **Sample Types** – Effluent samples shall 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)
 - 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 compliance chronic toxicity monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. For 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 or laboratory water control may be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

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

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

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 the Method Manual.
- 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 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.** Routing and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the annual self-monitoring report, and shall contain, at minimum:
 - a. The results expressed in TUC, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
 - b. The 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 self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring type, i.e., routine, compliance, TES, or TRE monitoring.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the annual discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger’s approved TRE Workplan, 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. LAND DISCHARGE MONITORING REQUIREMENTS

A. Domestic Waste Treatment System

1. The Discharger shall inspect the domestic waste treatment system monthly.

B. Landscape Irrigation System

1. The Discharger shall monitor wastewater supplied to the landscape irrigation system from the blowdown tank at Monitoring Location LND-001 as follows:

Table E-5. Landscape Irrigation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Cumulative	1/Day	--
Chloride	mg/L	Grab	1/Month	1
Dissolved Oxygen	mg/L	Grab	1/Month	1,3
pH	standard units	Grab	1/Month	1,3
Sulfate	mg/L	Grab	1/Month	1
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	1,3
General Minerals ²	mg/L	Grab	1/Year	1

Table E-5. Notes:

- 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 General minerals include: bicarbonate, carbonate, calcium, chloride, magnesium, nitrate (as N), potassium, silica, sodium, and sulfate.
- 3 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.

C. Log Deck Spray Area

- 1. The Discharger shall monitor processed fuel pile leachate before being land applied at the Log Deck Spray Area at Monitoring Location LND-002 as follows:

Table E-6. Log Deck Spray Area Monitoring Requirements³

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Cumulative	1/Day	--
Color	Color units	Grab	1/Month	1
Oil and Grease	mg/L	Grab	1/Month	1
Total Suspended Solids	mg/L	Grab	1/Month	1
Chemical Oxygen Demand	mg/L	Grab	1/Month	1
Settleable Solids	ml/L	Grab	1/Month	1
pH	standard units	Grab	1/Month	1,2
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	1,2
Total Dissolved Solids	mg/L	Grab	1/Month	1
Tannins & Lignins	mg/L	Grab	1/Month	1
Arsenic	µg/L	Grab	1/Month	1
Total Chromium	µg/L	Grab	1/Month	1
Iron	µg/L	Grab	1/Month	1
Manganese	µg/L	Grab	1/Month	1

Table E-6. Notes:

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

- 2 A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
- 3 These monitoring requirements apply during each calendar month that processed fuel pile leachate is land applied.

D. Fire and Cooling Water Ponds

- 1. The fire and cooling water ponds shall be inspected on a regular basis to check for liner failure and/or leakage. The Discharger shall monitor the fire and cooling water ponds at Monitoring Locations PND-001 and PND-002 as follows:

Table E-7. Fire and Cooling Water Ponds Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard Depth	feet, inches	Visual	1/Week	--
Dissolved Oxygen	mg/L	Grab	1/Month	1,2

Table E-7. Notes:

- 1 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
- 2 A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations RSW-001, RSW-002, and RSW-003

- 1. The Discharger shall monitor the Anderson Cottonwood Irrigation District Canal at Monitoring Locations RSW-001 and RSW-002. If the only flows at RSW-001 are due to backwater conditions (the discharge backing up), and there are no other upstream flows from other sources, monitoring at RSW-001 is not required.

Table E-8. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Estimate	1/Month	--
Conventional Pollutants				

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	standard units	Grab	1/Month	1,5
Priority Pollutants				
Priority Pollutants and Other Constituents of Concern	See Section IX.E	See Section IX.E	See Section IX.E ²	1,3
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab	1/Month	1,2
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	1,5
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Month	1
Temperature	°F	Grab	1/Month	1,5
Total Dissolved Solids	mg/L	Grab	1/Quarter ⁴	1
Turbidity	NTU	Grab	1/Month	1,5

Table E-8. Notes:

- 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 Monitoring for priority pollutants and other constituents of concern shall be conducted at Monitoring Location RSW-001 only.
- 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-14).
- 4 Twice between April through October, when water is diverted into the Anderson Cottonwood Irrigation District Canal for irrigation and twice during November through March when there is upstream flow in the Anderson Cottonwood Irrigation District Canal that is not a result of irrigation water diversions.
- 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.

2. The Discharger shall monitor temperature in the Anderson Cottonwood Irrigation District Canal at Monitoring Location RSW-003 only if the temperature at RSW-002 is greater than 5 °F warmer than the temperature at RSW-001, as follows:

Table E-9. Receiving Water Monitoring Requirements at RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Temperature	°F	Grab	1/Month ¹	2,3,4

Table E-9. Notes:

- 1 Samples shall be collected on the same day as temperature samples at monitoring location RSW-001.
- 2 During storm water runoff and/or other miscellaneous flows (November through March) when there is upstream flow in the Anderson Cottonwood Irrigation District Canal.
- 3 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
- 4 A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

- 3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002 when discharging to the Anderson Cottonwood Irrigation District Canal. Attention shall be given to the presence of:
 - a. Floating or suspended matter;
 - b. Discoloration;
 - c. Bottom deposits;
 - d. Aquatic life;
 - e. Visible films, sheens, or coatings;
 - f. Fungi, slimes, or objectionable growths; and
 - g. Potential nuisance conditions.

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

B. Groundwater Monitoring Wells MW-4, MW-5, and MW-6

- 1. Prior to construction and/or beginning a sampling program of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network (which currently consists of Monitoring Wells MW-4, MW-5, and MW-6) and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

2. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring at MW-4, MW-5 and MW-6, and any new groundwater monitoring wells shall include, at a minimum, the following:

Table E-10. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	±0.01 feet	Measurement	2/Year	--
Groundwater Elevation ¹	feet & 100 th , MSL	Grab	2/Year	--
Gradient	feet/feet	Calculated	2/Year	--
Gradient Direction	degrees	Calculated	2/Year	--
Chloride	mg/L	Grab	2/Year	2
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/Year	2
Nitrate, Total (as N)	mg/L	Grab	2/Year	2
pH	standard units	Grab	2/Year	2
Sulfate	mg/L	Grab	2/Year	2
Tannins and Lignins	mg/L	Grab	2/Year	2
Temperature	°F	Grab	2/Year	2
Total Dissolved Solids	mg/L	Grab	2/Year	2
Turbidity	NTU	Grab	2/Year	2
Metals ³	µg/L	Grab	2/Years	2,5
Bicarbonate	mg/L	Grab	1/5 Years	2
Calcium	mg/L	Grab	1/5 Years	2
Carbonate	mg/L	Grab	1/5 Years	2
Magnesium	mg/L	Grab	1/5 Years	2
Organics ⁴	µg/L	Grab	1/5 Years	2
Potassium	mg/L	Grab	1/5 Years	2
Sodium	mg/L	Grab	1/5 Years	2

Table E-10. Notes:

- 1 Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well. The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow, which must be reported.
- 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 Metals include arsenic, chromium (total and hexavalent), copper, iron, manganese, and zinc.
- 4 Organics include phenols, cresols, pentachlorophenol, and tetrachlorophenol.
- 5 Samples shall be filtered through a 0.45-µm filter prior to sample analyses.

C. Leachfield Monitoring (Piezometers P-1 through P-8, P-10, and P-11)

1. The Discharger shall inspect the leachfield weekly and report the presence or absence of saturated soils or standing liquid. All leachfield piezometers shall be monitored to determine if the leachfield is properly draining, and to observe the separation to groundwater. The results shall be submitted with the monthly monitoring report and include the following:

Table E-11. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Water	feet, inches	--	1/Quarter	--
Gradient	feet/feet	--	1/Quarter	--
Groundwater Flow Direction	--	--	1/Quarter	--

IX. OTHER MONITORING REQUIREMENTS

A. Precipitation Monitoring

1. Precipitation information shall be collected as follows and reported in the monthly SMR:

Table E-12. Precipitation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Precipitation	inches (+/- 0.1)	Visual	1/Day ¹	--

Table E-11. Note:

¹ Reading shall be taken at approximately the same time each day.

B. Water Supply

1. The Discharger shall monitor the water supply wells at the Facility. Samples shall be collected, analyzed, and reported in accordance with the standards provided by the Shasta County Department of Resource Management, Environmental Health Division. A report of the water supply monitoring shall be submitted with the monthly monitoring report.

C. Aboveground Petroleum Storage Monitoring

1. The Discharger shall visually inspect the aboveground petroleum storage tanks at the Facility, as required by the Facility’s Spill Prevention Control and Countermeasures Plan. A report of the inspection shall be submitted. In the event of a petroleum release, a report shall be submitted describing the corrective action that was taken to remediate and dispose of the contaminated soil. The results shall be submitted with the monthly SMR.

D. Ash Monitoring

1. Wood ash information shall be collected and reported in the SMRs in accordance with the table below.

Table E-13. Ash Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Ash Generated	Dry tons ¹	Composite	1/Month	--
Ash Stored at Facility	Dry tons ¹	Composite	1/Month	--
Ash Stored Off-site	Dry tons ¹	Composite	1/Month	--
Ash Removed from Facility and from Off-site Storage Location	Dry tons ¹	Composite	1/Month	--
Ash Liming Capacity	Equiv % CaCO ₃	Composite	2/Year ⁸	UC Davis Method 440 or AOAC 955.01 ²
Ash Total Phosphorus	mg/kg	Composite	2/Year ⁸	3
Moisture Content	% moisture	Composite	2/Year	3
pH	standard units	Composite	2/Year	3
CAM 17 Metals ⁴	mg/kg	Composite	2/Year	3,5
2,3,7,8-TCDD and congeners ⁶	pg/g	Composite	1/Year ⁷	U.S. EPA Method 1613

Table E-13 Notes:

- ¹ Units may be reported in volume or weight measurement.
- ² A&L Western Agricultural Laboratories “Neutralizing value of liming materials (or percent calcium carbonate equivalency-CCE).”

- 3 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
- 4 California Administrative Manual (i.e., CCR) metals: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.
- 5 In accordance with Title 22, CCR testing procedures.
- 6 Dioxin equivalents, also known as the TEQ, is a calculated value that reflects the combined effect of dioxin and furan compounds (congeners). Results for dioxin TEQ shall include all congeners.
- 7 Upon Executive Officer approval, sampling frequency may be reduced after two consecutive years of data have been submitted.
- 8 Only for ash used as an agricultural soil amendment.

- 2. The Discharger shall record the following information about wood ash removed from the Facility and submit in the monthly SMR:
 - a. Disposal location or soil amendment application area (i.e., name and address);
 - b. For agricultural soil amendment application, area of land where ash is applied (acres); and
 - c. Volume and/or weight of ash for each location/area.

E. Effluent and Receiving Water Characterization

- 1. **Monitoring.** Samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) and analyzed for the constituents listed in Table E-14, below. Quarterly monitoring shall be conducted for one year beginning with the second quarter of 2020 and the results of such monitoring be submitted to the Central Valley Water Board with the quarterly self-monitoring reports. 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-14, below.
- 4. **Analytical Methods Report.** The Discharger shall submit a report electronically via CIWQS submittal outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for all constituents to be monitored in the influent, effluent, receiving water, and characterization monitoring by the due date shown in the Technical Reports Table. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (ML's) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section

2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RL's, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table E-14 below provides required maximum reporting levels in accordance with the SIP.

Table E-14. 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	
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
Bis(2-ethylhexyl) phthalate ²	µg/L	Grab	5
Butyl benzyl phthalate	µg/L	Grab	10
Chrysene	µg/L	Grab	5
Di-n-butylphthalate	µg/L	Grab	10
Di-n-octylphthalate	µg/L	Grab	10
Dibenzo(a,h)-anthracene	µg/L	Grab	0.1
Diethyl phthalate	µg/L	Grab	10
Dimethyl phthalate	µg/L	Grab	10
Fluoranthene	µg/L	Grab	10
Fluorene	µg/L	Grab	10
Hexachlorocyclopentadiene	µg/L	Grab	5
Indeno(1,2,3-c,d)pyrene	µg/L	Grab	0.05
Isophorone	µg/L	Grab	1
N-Nitrosodiphenylamine	µg/L	Grab	1
N-Nitrosodimethylamine	µg/L	Grab	5
N-Nitrosodi-n-propylamine	µg/L	Grab	5
Nitrobenzene	µg/L	Grab	10
Pentachlorophenol	µg/L	Grab	1
Phenanthrene	µg/L	Grab	5
Phenol	µg/L	Grab	1
Pyrene	µg/L	Grab	10
Aluminum	µg/L	Grab	
Antimony	µg/L	Grab	5
Arsenic ³	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	10
Chromium (VI)	µg/L	Grab	10
Copper	µg/L	Grab	0.5
Cyanide	µg/L	Grab	5
Fluoride	µg/L	Grab	

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
Iron	µg/L	Grab	
Lead	µg/L	Grab	0.5
Mercury	µg/L	Grab	0.5
Manganese	µg/L	Grab	
Molybdenum ³	µg/L	Grab	
Nickel	µg/L	Grab	20
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) ³	µg/L	Grab	0.01
Alachlor	µg/L	Grab	
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
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)	mg/L	Grab	
Boron	µg/L	Grab	
Chloride	mg/L	Grab	
Flow	MGD	Meter	
Hardness (as CaCO ₃)	mg/L	Grab	
Foaming Agents (MBAS)	µg/L	Grab	
Mercury, Methyl	ng/L	Grab	
Nitrate (as N)	mg/L	Grab	
Nitrite (as N)	mg/L	Grab	
pH	Std Units	Grab	
Phosphorus, Total (as P)	mg/L	Grab	
Specific conductance (EC)	µmhos/cm	Grab	
Sulfate	mg/L	Grab	
Sulfide (as S)	mg/L	Grab	

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
Sulfite (as SO ₃)	mg/L	Grab	
Temperature	°F	Grab	
Total Dissolved Solids (TDS)	mg/L	Grab	

Table E-14. Notes:

- | | |
|---|---|
| 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. |

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the 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. 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 (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). The CIWQS website 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 SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs 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-15. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
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
1/Month	Permit effective date	1 st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
2/Year	Permit effective date	1 January through 30 June 1 July through 31 December	Submit monthly SMR in which sample was collected
1/Year	Permit effective date	1 January through 31 December	Submit with Annual Report
1/Year (Annual Report)	Permit effective date	1 January through 31 December	1 February of the following year
1/2 Years	Permit effective date	varies	Submit with Annual Report
1/5 Years	Permit effective date	varies	Submit with Annual Report

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 (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the 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 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 SMRs in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

- b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 - c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed.
7. The Discharger shall submit in the SMRs calculations and reports in accordance with the following requirements:
- a. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall report monthly in the self-monitoring report the dissolved oxygen concentrations in the effluent (EFF-001) and the receiving water (RSW-001 and RSW-002).
 - b. **Turbidity Receiving Water Limitations.** 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 Waste Discharge Requirements.
 - c. **Temperature Receiving Water Limitations.** 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 or RSW-003.
 - d. **Groundwater Monitoring Reports.** The reports shall be prepared by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities, and shall bear the professional's signature and stamp. Each semi-annual report shall contain:
 - i. Results of the monitoring of the groundwater in tabular format;
 - ii. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with this Order. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
 - iii. Calculation of groundwater elevations, determination of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
 - iv. Summary data tables of historical and current groundwater elevations;
 - v. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Discharge Monitoring Reports (DMR's)

DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMR's together with SMR's using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal will 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. **Annual Operations Report.** The Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing the following by the due date in the Technical Reports Table:
 - a. The names 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 Facility 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.
2. **Technical Report Submittals.** This Order includes requirements to submit a Report of Waste Discharge (ROWD), special study technical reports, progress reports, and other reports identified in the MRP (hereafter referred to collectively as "technical reports"). The Technical Reports Table below summarizes all technical reports required by this Order and the due dates for submittal. All technical reports shall be submitted electronically via CIWQS submittal. Technical reports should be uploaded as a PDF, Microsoft Word, or Microsoft Excel file attachment.

Table E-16. Technical Reports

Report Number	Technical Report	Due Date	CIWQS Report Name
Standard Reporting Requirements			
1	Report of Waste Discharge	30 November 2023	ROWD
2	Analytical Methods Report	9 December 2019	MRP X.D.3
3	Annual Operations Report	30 January 2020	MRP X.D.4
4	Annual Operations Report	30 January 2021	MRP X.D.4
5	Annual Operations Report	30 January 2022	MRP X.D.4
6	Annual Operations Report	30 January 2023	MRP X.D.4
7	Annual Operations Report	30 January 2024	MRP X.D.4
Other Reports			
8	Anti-Degradation Re-evaluation	30 November 2023	WDR VI.C.2.b.
9	Salinity Evaluation and Minimization Plan	30 November 2023	WDR VI.C.3.a.
10	Amended Storm Water Pollution Prevention Plan	15 October in the year which it is prepared ¹	WDR VI.C.3.b.ii.
11	Storm Water Annual Reports	1 July 2020	WDR VI.C.3.b.iii.
12	Storm Water Annual Reports	1 July 2021	WDR VI.C.3.b.iii.
13	Storm Water Annual Reports	1 July 2022	WDR VI.C.3.b.iii.
14	Storm Water Annual Reports	1 July 2023	WDR VI.C.3.b.iii.

Table E-16. Note:

¹ This report is only required if there are changes that may affect the discharge of significant quantities of pollutants to surface water, if there are violations of this permit, or if the general objective of controlling pollutants in the storm water discharges has not been achieved.

ATTACHMENT F – FACT SHEET

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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 discusses 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	5A452033001
CIWQS Facility Place ID	272395
Discharger	Wheelabrator Shasta Energy Company, Inc
Name of Facility	Wheelabrator Shasta Energy Company, Inc.
Facility Address	20811 Industry Road
	Anderson, CA 96007
	Shasta County
Facility Contact, Title and Phone	Derrick Boom, Environmental Manager, (530) 339-7627
Authorized Person to Sign and Submit Reports	Bryan Booth, Plant Manager, (530) 339-7600
Mailing Address	Same as Facility Address
Billing Address	Same as Facility Address
Type of Facility	Standard Industrial Classification (SIC) Code 4911 – Electrical Services
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	4.5 million gallons per day (MGD)
Facility Design Flow	Not Applicable
Watershed	Cottonwood Creek Hydrologic Unit (524.3)
Receiving Water	Anderson Cottonwood Irrigation District Canal
Receiving Water Type	Inland surface water

- A. Wheelabrator Shasta Energy Company, Inc., (hereinafter Discharger) is the owner and operator of Wheelabrator Shasta Energy Company, Inc. (hereinafter Facility), an electrical power generation facility.

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

- B. The Facility discharges wastewater to the Anderson Cottonwood Irrigation District Canal, a water of the United States, tributary to Sacramento River via Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, and Cottonwood Creek within the Cottonwood Creek Hydrologic Unit (524.3) watershed. The Discharger was previously regulated by Order R5-2015-0078 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081957 adopted on 5 June 2015 and expires on 3 February 2020. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.
- C. When applicable, state law requires dischargers to file a petition with the State Water Board, Division of Water Rights and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains separate jurisdictional authority to enforce any applicable requirements under Water Code section 1211. This is not an NPDES permit requirement.
- D. 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 15 April 2019. The application was deemed complete on 10 May 2019. A site visit was conducted on 2 July 2019, to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.
- E. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. Under 40 C.F.R. section 122.6(d), States authorized to administer the NPDES program may administratively continue State-issued permits beyond their expiration dates until the effective date of the new permits, if State law allows it. Pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The Facility is a 54-megawatt biomass electrical generation facility located on approximately 75 acres. The Facility is located south of the City of Anderson.

The Facility consists of biomass storage areas, two truck scales, three platform truck dumpers, hammer hog with scalpers and conveyers, fuel dumping and metering bins, infeed/offload conveyors, one 50-foot high stacker with 1,100 foot long overpile reclaimers, three boilers each producing 190,000 lb/hr of steam, three ash reinjection systems, three multicyclone collectors, three electrostatic precipitators, three ammonia injection NOX control systems, four turbine generators, two multi-cell evaporator cooling towers, an electrical switch yard, secondary contained aboveground petroleum and hazardous materials storage areas, water treatment chemical storage and use, equipment fueling and maintenance areas, paved and unpaved roadways, two water supply wells, a

laboratory, a retention pond, two fire and cooling water ponds, a septic tank leachfield system, a maintenance shop, storage buildings, and offices. There are two processed fuel piles that are the source of fuel for the boilers. These are contained within the fuel pile stormwater berm. The east and west piles are fed by the stacker, and the fuel is collected from these piles by the reclaimers. There is also an unprocessed biomass fuel pile by the north hog, an area used to stage shells and pits, and a collection area for the public wood recycling program. In addition, there are logs staged on the log deck.

A. Description of Wastewater and Biosolids Treatment and Controls

The Facility's wastes include cooling tower blowdown, boiler blowdown, reject water from the reverse osmosis (RO) system, condensate (compressor, air receivers, and air conditioning units), fly ash, bottom ash, waste petroleum products, universal wastes, miscellaneous hazardous wastes (such as paint), sewage, groundwater from the under drain systems, and storm water runoff.

The Discharger has two supply wells at the Facility. The water is pumped from the wells into one of two fire and cooling water ponds (Fire Pond East and Fire Pond West) or to a raw water tank. The raw water tank supplies the high purity water system, plant water for facility maintenance, and water for potable uses.

The high purity water system consists of three RO treatment units that treat groundwater for use in the boilers. Reject water from RO treatment is disposed of in the primary and secondary cooling towers. Treated water from the RO treatment units is directed to a deaeration tank and is then used as make-up water for the boilers.

The fire and cooling water ponds are used for supplying the firewater system pumps, primary and secondary cooling towers, and a soft blowdown tank. To reduce algal growths, the ponds are treated with chlorine at quantities necessary to maintain a residual of 0.2-0.5 parts per million (ppm). The fire and cooling water ponds are lined with a 36-mil synthetic plastic.

Blowdown from the boilers discharges to the turbine hall sump where it combines with pumped groundwater prior to entering the primary cooling tower. Wastewater from the primary and secondary cooling towers is directed to the blowdown tank. Wastewater in the blowdown tank is dechlorinated using sodium bisulfite and then discharged to either the retention pond or landscape irrigation system.

In the fall of 2015, the existing processed fuel pile was expanded, and the berm was relocated 50 feet to the east. The construction of the new berm for the fuel pile was permitted by a Shasta County grading permit and a Central Valley Water Board construction storm water permit. This project expanded the existing storm water retention basin at the eastern toe of the fuel pile and maintained the function of the previous fuel area storm water retention berm.

Effluent from the Facility continuously discharges to the 2.8-acre, unlined retention pond. The retention pond receives an average of 400,000 gallons per day (gpd) of wastewater from the blowdown tank, wastewater from plant maintenance, condensate, and storm water runoff. Additionally, an internal under drain system removes shallow groundwater from within the Facility and discharges to the retention pond. The retention pond is highly vegetated with cattails and, tall grass, which decrease flow velocity and increase retention time, allowing for additional settling and

heat loss. The retention pond contents drain into an open channel, through a 60-inch concrete pipe, and through a 12-inch discharge pipe before discharging into the Anderson Cottonwood Irrigation District Canal at Discharge Point 001. A portion of the groundwater from the westerly under drain system is discharged to the Anderson Cottonwood Irrigation District Canal at Discharge Point 003.

The primary fuel source for the Discharger's power plant is biomass from off-site sources; natural gas is used as a supplementary fuel for startup and flame stabilization of the plant's boilers. Logs are stored in a log deck storage area located along the east side of the Facility. Water is not sprayed on the logs. Chipped wood waste is removed from trucks using platform dumpers and conveyed to one of the two processed wood chip piles or staged on paved areas east of the platform dumpers. Woody yard waste and unprocessed waste is stored in piles adjacent to the north hog.

Paved surfaces and buildings comprise approximately 10 percent of the property. Fuel (biomass) and log storage areas occupy most of the remainder of the site. Storm water runoff from areas of industrial activity flows to the retention pond. The storm water runoff associated with areas where no industrial activities occur are either collected by the westerly under drain system and discharged at Discharge Point 003 or are combined with plant process waters and discharged to the retention pond.

Storm water and waters generated from housekeeping activities in the boiler and ash handling areas are directed to the fuel pile leachate sump, except during periods of heavy rainfall, threats of flooding, or other limited situations when the flows are directed to the retention pond.

In the fuel pile area, storm water runoff accumulates within the bermed area along the fuel pile's eastern boundary. During prolonged rain events, this area can fill with water and produce leachate. Leachate from the fuel pile is pumped into the soft blowdown tank. This wastewater is used to quench fly ash, a waste product of combustion, and for general dust control purposes. When leachate is no longer available, water from the fire and cooling water ponds is used. During the wet season (between mid-October and mid-April), the water demand for the fly ash wetting and dust control is not enough to manage all the storm water that accumulates in the fuel pile area, and excess leachate is retained in the fuel pile area by the earthen berm. To manage the accumulated leachate, 5 sprayer units are used to atomize and recirculate the water onto the 8-acre Log Deck Spray Area. This system aerates and evaporates the storm water while exposing it to sunlight and can only be used during dry-weather periods. Water that does not evaporate or percolate is captured by the eastern-most boundary berm and recirculated to the bermed fuel pile storage area. Note that this practice is not considered wet decking as described in 40 CFR Part 429, as this water is atomized and evaporated in the air and not sprayed on the logs.

Fly ash is loaded directly into trailers and transported off-site for use as soil amendment. During adverse weather conditions (wet season and/or windy conditions) when it is not suitable or practical to apply the fly ash as an agricultural soil amendment, fly ash may be temporarily stored in the building at the nearby Roseburg Lumber Products site. Bottom ash is used for onsite and off-site road base, trench

filling, grading, and alternate daily cover at regulated landfills. Bottom ash may be staged on-site south of the boilers prior to disposition.

Domestic wastewater from the Facility discharges to a septic system consisting of a lift station, septic tank, pump station, forced main to a distribution tank, and a leachfield north of the office building. Approximately 1,600 gpd of domestic sewage, generated from restroom facilities at the administration building, turbine building, break room, and maintenance building flow into a lift station and are pumped to a septic tank on the east side of the administration building.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 26, T30N, R4W, MDB&M, as shown in Attachment B, a part of this Order.
2. Reverse osmosis reject water, boiler blow-down, cooling tower blowdown, equipment condensate, plant maintenance water, dust control water, storm water, and groundwater from the westerly under drain system is discharged at Discharge Point 001 to Anderson Cottonwood Irrigation District Canal, a water of the United States and a tributary to Cotton Creek via Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek at a point latitude 40° 25' 49" N and longitude 122° 16' 32" W.
3. Groundwater from the internal under drain system is discharged at Discharge Point 003 to the Anderson Cottonwood Irrigation District Canal, a water of the United States and a tributary to the Cotton Creek via Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek at a point latitude 40° 25' 49" N and longitude 122° 16' 32" W.

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

Effluent limitations contained in Order R5-2015-0078 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2015-0078 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Average Monthly Effluent Limitations	Maximum Daily Effluent Limitation	Monitoring Data (November 2015–November 2018)	
				Highest Average Monthly Discharge	Highest Daily Discharge
Chlorine, Total Residual	mg/L	0.01	0.02	0.00525	0.009
pH	standard units	--	6.5 -- 9.0	--	6.5-9.15
Settleable Solids	ml/L	0.1	0.2	0.1	0.5
Electrical Conductivity @ 25°C	µmhos/cm	990	1200	637.5	695

Parameter	Units	Average Monthly Effluent Limitations	Maximum Daily Effluent Limitation	Monitoring Data (November 2015–November 2018)	
				Highest Average Monthly Discharge	Highest Daily Discharge
Acute Toxicity	% Survival	--	70 ¹ /90 ²	--	100 ³
Flow	MGD	--	4.5 ⁴	--	0.597

Table F-2. Notes:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1 2 3 4 | <p>Minimum for any one bioassay.</p> <p>Median for any three consecutive bioassays.</p> <p>Represents the minimum observed percent survival.</p> <p>The discharge of process water (non-storm water and under drain water) shall not exceed 4.5 MGD.</p> |
|--|--|

D. Compliance Summary

In October 2015, the Discharger exceeded the pH instantaneous maximum effluent limit; the pH Instantaneous Maximum effluent limit is 9.0 SU and the reported value was 9.1 SU.

In January 2016, during the retention pond cleanout event, the Discharger received 9 violations: 7 receiving water limit violations for increasing the receiving water turbidity by over 20%, and 2 category 1 effluent limit violations for settleable solids.

In June 2016, the Discharger exceeded the pH instantaneous maximum effluent limit; the pH Instantaneous Maximum effluent limit is 9.0 SU and the reported value was 9.15 SU.

E. Planned Changes

To improve fuel pile leachate management, the Discharger will be, when needed, discharging a blend of fuel pile leachate with cooling tower blowdown at a 1:20 ratio (Blend). Discharging the Blend will allow the Discharger to drain the fuel pile leachate collection area, which will improve fuel quality and ground conditions, decrease odor potential, and reduce the potential for unauthorized leachate discharge. To direct the Blend to the retention pond, the Discharger is proposing to connect a water line from the fuel pile collection area into the line that directs cooling tower blowdown to the storm water retention pond. The fuel pile storm water will feed into the cooling tower blowdown line at a rate of approximately 15 to 20 gallons per minute, which was the rate determined to allow for gradual equalization of these two streams. The Discharger anticipates that the changes will occur prior to the 2019/2020 wet season.

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 for the Sacramento River and San Joaquin River Basins, Fifth Edition, May 2018 (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 Section 2.1 for water bodies in the Sac/SJ Basin states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table 2-1, Section 2, does not specifically identify beneficial uses for Anderson Cottonwood Irrigation District Canal, but does identify present and potential uses for Cottonwood Creek, to which the Anderson Cottonwood Irrigation District, via Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, is hydraulically connected. 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 Anderson Cottonwood Irrigation District Canal are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 003	Anderson Cottonwood Irrigation District Canal	<p>Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); cold migration of aquatic organisms (MIGR); warm and cold spawning, reproduction, and/or early development (SWPN); and wildlife habitat (WILD).</p> <p>Potential: Industrial process supply (PRO); industrial service supply (IND); and hydropower generation (POW).</p>
--	Groundwater	<p>Existing: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PRO).</p>

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”) (State

Anti-Degradation Policy). The State Anti-Degradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Anti-Degradation Policy 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 the State Anti-Degradation Policy. The Board finds this order is consistent with the Federal and State Water Board antidegradation regulations and policy.

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
8. **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 steam electric power generating facilities, which includes any facility that generates steam for electric power through the combustion of coal, oil, wood, etc. Steam electric power generating facilities are applicable industries under the storm water program and are obligated to comply with the federal regulations.

The discharge of industrial storm water from the Facility could be regulated under the General Industrial Storm Water Permit. However, due to the complexity of the Facility operations and unique threats to water quality, the Central Valley Water Board has elected to regulate these discharges with an individual NPDES permit. Therefore, discharges of industrial storm water from the Facility are not covered under the General Industrial Storm Water Permit and are covered under this Order.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011 U.S. EPA gave final approval to California's 2008-2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." The Anderson Cottonwood Irrigation District Canal, Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, and Cottonwood Creek are not listed as impaired waterbodies on the 2010 303(d) list.
2. **Total Maximum Daily Loads (TMDL's).** At the time of this permit renewal, there are no approved TMDL's with wasteload allocations that apply to this Facility.

E. Other Plans, Polices and Regulations

1. **Title 27.** Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. Discharges of wastewater to land, including, but not limited to, evaporation ponds or percolation ponds, may be exempt from the requirements of Title 27, CCR, based on section 20090 et seq. The Facility includes a retention pond, and two fire/cooling water ponds all of which may be exempt from Title 27 pursuant to section 20090(b), the "wastewater exemption." The wastewater exemption has the following preconditions for exemption from Title 27:

20090(b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

- (1) the applicable [regional water quality control board] has issued WDRs... or waived such issuance;
- (2) the discharge is in compliance with the applicable water quality control plan; and
- (3) the wastewater does not need to be managed... as a hazardous waste.

The retention pond is unlined, and wastewater contained in the pond percolates to the underlying groundwater; however, groundwater monitoring data indicate that the discharge is in compliance with the Basin Plan, and, thus, meets precondition (2). Therefore, the Facility retention pond is exempt from Title 27 under the wastewater exemption. This Order requires the Discharger to continue collecting groundwater monitoring data.

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 4-27, 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 Section 3.1.20) 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 MCLs. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on 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 CFR section 122.41(m)(2)-(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. 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 No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation. The Facility occasionally implements such a bypass to drain the storm water retention pond when performing non-routine, essential maintenance. During the maintenance period, process wastewater bypasses the retention pond and is redirected to an open ditch located along the west property boundary; this ditch currently collects onsite underdrain flow and run-on from the undeveloped neighboring property and discharges through EFF-003 via the existing discharge line.
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 (The discharge shall not contain more than 5% leachate (by volume) from one of the two processed fuel chip piles at any time).** This Order prohibits the discharge from containing more than 5% (by volume) leachate from the two processed fuel chip piles. Currently, when practicable, leachate from the fuel pile is pumped into the soft blowdown tank and is then used to wet fly ash prior to shipment or for general dust control. When excess leachate is generated, it is either land applied on the log deck area via the spray system or discharged at a 1:20 ratio with other process wastewater consistent with this prohibition.

5. Prohibition III.E (No discharge of ash, bark, sawdust, wood, debris, or any other such wastes to surface water or surface water drainage courses). Consistent with Order R5-2015-0078, this Order prohibits discharges of ash, bark, sawdust, wood, debris, or any other such wastes to surface water or surface water drainage courses.
6. **Prohibition III.F (No discharge of hazardous or toxic substances to surface waters or groundwater).** Consistent with Order R5-2015-0078, this Order prohibits discharges of hazardous or toxic substances, including water treatment chemicals, solvents, or petroleum products (i.e., oil, grease, gasoline, and diesel) to surface waters or groundwater.
7. **Prohibition III.G (No direct discharge of domestic wastewater to the under drain system).** Consistent with Order R5-2015-0078, this Order prohibits direct discharge of domestic wastewater to the under drain system. The under drain system, which consists of the westerly under drain and internal under drain, discharges to the Anderson Cottonwood Irrigation District Canal.
8. **Prohibition III.H (No discharge of hazardous waste).** This prohibition is based on California Code of Regulations, title 22, section 66261.1 et seq, that prohibits discharge of hazardous waste.
9. **Prohibition III.I (Flow).** This prohibition is based on the design flow treatment capacity rating for the Facility and ensures the Facility is operated within its treatment capacity. Previous Order R5-2015-0078 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous 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 CWA requires that technology-based effluent limitations be established based on several levels of controls:

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

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

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

2. Applicable Technology-Based Effluent Limitations

- a. **Steam Electric Power Generating Point Source Category.** U.S. EPA developed ELG's for the Steam Electric Power Generating Point Source Category at 40 C.F.R. part 423, which are applicable to "*discharges resulting from the operation of a generating unit by an establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel (coal, oil, or gas) or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium.*" The Facility utilizes biomass fuel for power generation. Therefore, the ELG's at 40 C.F.R. part 423 are not applicable to the Facility.
- b. **Wet Decking.** U.S. EPA developed ELG's for the Wet Storage Subcategory of the Timber Products Point Source Category at 40 C.F.R. part 429, subpart I, which are applicable to "*discharges to waters of the United States and to the introduction of process wastewater pollutants into publicly owned treatment works from the storage of unprocessed wood, i.e., the storage of logs or roundwood before or after removal of bark in self-contained bodies of water (mill ponds or log ponds) or the storage of logs or roundwood on land during which water is sprayed or deposited intentionally on the logs (wet decking).*" The Discharger does not spray water on the logs contained on the fuel pile at the Facility. Therefore, the ELG's at 40 C.F.R. part 429 are not applicable to the Facility.
- c. **Best Management Practices (BMP's).** In the absence of applicable ELG's for discharges from the Facility and pursuant to 40 C.F.R. section 122.44(k),

this Order requires the Discharger to implement a Storm Water Pollution Prevention Plan (SWPPP), which contains BMP's to reduce pollutants in storm water discharges from the Facility. The SWPPP will serve as the equivalent of technology-based effluent limitations, in order to carry out the purposes and intent of the CWA.

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.

Finally, 40 C.F.R. section 122.44(d)(1)(vii) requires effluent limits to be developed consistent with any available WLAs developed and approved for the discharge.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

The Basin Plan on page 2-1 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*" and with respect to disposal of wastewaters states that "*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

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

propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.” Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 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.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.
- b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from November 2015 through November 2018, which includes effluent and ambient background data submitted in SMRs.
- c. **Assimilative Capacity/Mixing Zone.** The Basin Plan allows mixing zones provided the Discharger has demonstrated that the mixing zone will not adversely impact beneficial uses. The Basin Plan further requires that in determining the size of a mixing zone, the Central Valley Water Board will consider the applicable procedures in U.S. EPA’s Water Quality Standards Handbook and *Technical Support Document for Water Quality Based Toxics Control* (TSD). It is the Central Valley Water Board’s discretion whether to allow a mixing zone.

The SIP, in part, states that mixing zones shall not: compromise the integrity of the entire water body; cause acutely toxic conditions to aquatic life passing through the mixing zone; restrict passage of aquatic life; adversely impact biologically sensitive or critical habitats, including but not limited to, habitat of species listed under Federal or State endangered species laws; dominate the receiving water body; or overlap a mixing zone from a different outfall. U.S. EPA’s Water Quality Standards Handbook states that states may, at their discretion, allow mixing zones. The Water Quality Standards Handbook recommends that mixing zones be defined on a case-by-case basis after it has been determined that the assimilative capacity of the receiving stream can safely accommodate the discharge. This assessment should take into consideration the physical, chemical, and biological characteristics of the discharge and the receiving stream; the life history of and behavior of organisms in the receiving stream; and the desired uses of the waters. Mixing zones should not be allowed where they may endanger critical areas (e.g., drinking water supplies, recreational areas, breeding grounds and areas with sensitive biota). The TSD states, in part in Section

4.3.1, that mixing zones should not be permitted where they may endanger critical areas.

The Basin Plan, SIP, and TSD state that allowance of a mixing zone is discretionary on the part of the Regional Board. Mixing zones will be limited to the amount of assimilative capacity necessary to comply with discharge limitations.

The Central Valley Water Board finds that based on the available information, the Anderson Cottonwood Irrigation District Canal absent the discharge, is at times an intermittent waterbody. The intermittent nature of the Anderson Cottonwood Irrigation District Canal means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge at times maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the Anderson Cottonwood Irrigation District Canal help support cold water aquatic life. Both conditions may exist within a short time span, where the Anderson Cottonwood Irrigation District Canal would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Cottonwood Creek. Dry conditions occur primarily in the winter months, but dry conditions may also occur throughout the year, particularly in the late fall and early spring. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall events. To the extent dilution and assimilative capacity is available in the receiving water to accommodate constituents in the effluent which exceed water quality criteria, this Order contains a reopener to revise effluent limitations based on concentrations or conditions determined to be in the receiving water. However, effluent limitations contained in this Order do not account for the receiving waters having dilution or assimilative capacity. The Discharger may submit receiving water characterization to demonstrate the flow regime and pollutant assimilative capacity and request that the Central Valley Water Board reopen the permit to consider this new information.

- 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 SIP¹ and the CTR². The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones³. Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10).⁴ 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 three year period on average.⁵ The CTR requires that when mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria apply throughout the water body including at the point of discharge.⁶ The CTR does not define the term “ambient,” as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

Summary findings

From November 1 to March 31, Anderson Cottonwood Irrigation District is effluent dominated. Under these regularly occurring critical conditions the effluent is the receiving water that is used to define the ambient receiving water conditions to define the appropriate water quality criteria in accordance with the CTR and SIP, otherwise if ambient downstream hardness was collected on the same day as effluent hardness, the downstream ambient hardness value is used. The Sacramento Superior Court has previously upheld the Central Valley Water Board’s use of effluent hardness levels in effluent-dominated streams when developing effluent limitations for hardness-dependent metals. (*California Sportsfishing Protection Alliance v. California Regional Water Quality Control Board, Central Valley Region*,

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

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

³ 40 C.F.R. §131.38(c)(4)(ii)

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

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

⁶ 40 C.F.R. §131.38(c)(2)(i)

Super. Ct. Sacramento County, 2012, No. 34-2009-80000309) (Order Denying Petitioners' Motion to Strike Respondent's Return of Writ of Mandate and Granting Discharge of the Writ)). The ambient hardness for Anderson Cottonwood Irrigation District is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 36 mg/L to 196 mg/L based on all collected ambient data from November 2015 through November 2018. 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 36 mg/L (minimum) up to 196 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-5 for the following reasons.

- i. The ambient receiving water hardness values shown in Table F-5 are consistent with design discharge conditions and will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
- ii. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. 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-5 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.
- iii. Using an ambient hardness that is higher than the minimum observed ambient hardness will result in limits that may allow increased metals to be discharged to Anderson Cottonwood Irrigation District Canal, but such discharge is allowed under the State Antidegradation Policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in Section IV.D.4 of the Fact Sheet). The State 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.
- iv. Using the ambient hardness values shown in Table F-5 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-4. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L) ²	Acute CTR Criteria (µg/L, total recoverable) ¹	Chronic CTR Criteria (µg/L, total recoverable) ¹
Copper	75	10.7	7.3
Chromium III	75	1372	164
Cadmium	66 (acute) 75 (chronic)	2.8	2.0
Lead	66	48	1.9
Nickel	75	368	41
Silver	66	2.0	--
Zinc	75	94	94

Table F-4. Notes:

- 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.

Background

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

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

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

Where:

H = ambient hardness (as CaCO₃)⁷

⁷ For this discussion, all hardness values are expressed in mg/L as CaCO₃.

WER = water-effect ratio

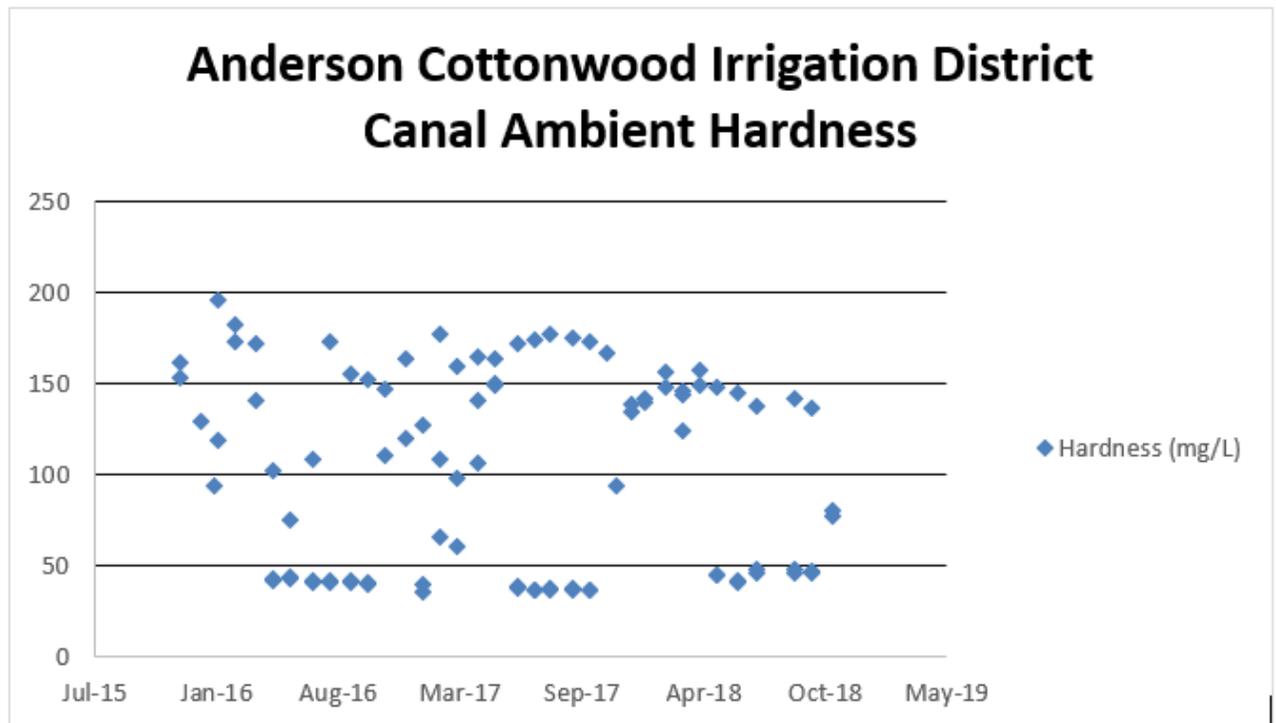
m, b = metal- and criterion-specific constants

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.⁸ Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10). Since Anderson Cottonwood Irrigation District regularly contains no upstream flow, the critical design flow is zero.

Ambient conditions

The ambient receiving water hardness varied from 36 mg/L to 196 mg/L, based on 92 samples from November 2015 through November 2018 (see Figure F-1).

Figure F-1. Observed Ambient Hardness Concentrations 36 mg/L – 196 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.

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

Approach to derivation of criteria

As shown above, ambient hardness is variable. 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 may not be representative considering the wide range of ambient conditions.

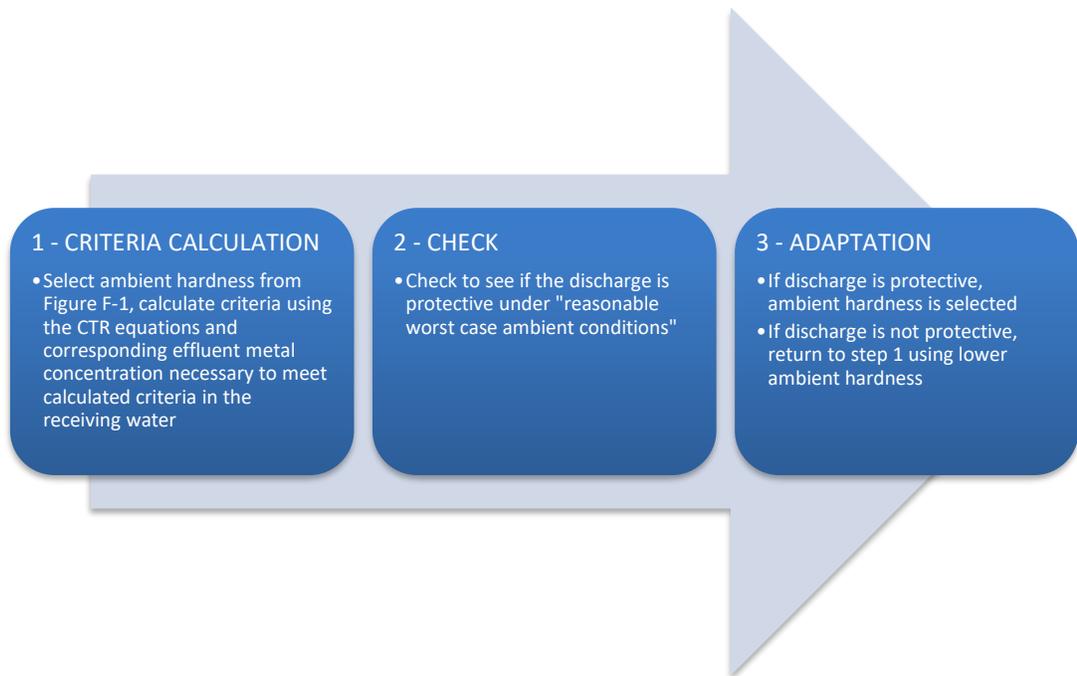
Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, staff have conducted an analysis considering varying ambient hardness and flow conditions. 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.
- “High receiving water flow (maximum receiving water flow).” This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.
- “Low receiving water hardness.” The minimum ambient receiving water hardness condition of 36 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 196 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.⁹ 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.”¹⁰ 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 equation¹¹ 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:

⁹ SIP Section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.

¹⁰ U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.

¹¹ U.S. EPA NPDES Permit Writers’ Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

- (A) receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.
- (B) receiving water metal concentration greater than CTR criteria, then return to bullet 1, selecting a lower ambient hardness value.

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

Results of iterative analysis

The above iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-5, above. Using these hardness values to calculate criteria, which are actual ambient sample results, will result in effluent limitations that are protective under all ambient flow conditions. Zinc and silver are used as examples below to illustrate the results of the analysis. Tables F-6 and F-7 below summarize the numeric results of the three-step iterative approach for zinc and silver. As shown in the example tables, ambient hardness values of 75 mg/L (zinc) and 66 mg/L (silver) 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 the 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-6 and F-7 summarize the critical flow conditions. However, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

Table F-5. Verification of CTR Compliance for Zinc

Receiving water hardness used to compute effluent limitations				75 mg/L
Effluent Concentration Allowance (ECA) for Zinc²				52 µg/L
Critical Flow Conditions	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Zinc Concentration¹ (µg/L)	
1Q10	75	93.9	93.9	Yes
7Q10	75	93.9	93.9	Yes
Max receiving water flow	37	51.61	20.24	Yes

Table F-5. Notes:

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.

Table F-6. Verification of CTR Compliance for Silver

Receiving water hardness used to compute effluent limitations				66 mg/L
Effluent Concentration Allowance (ECA) for Silver²				2 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Silver Concentration¹ (µg/L)	
1Q10	75	2.475	1.986	Yes
7Q10	75	2.475	1.986	Yes
Max receiving water flow	37	0.734	0.733	Yes

Table F-6. Notes:

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.

3. Determining the Need for WQBEL’s

Clean Water Act section 301(b)(1)(C) requires effluent limitations necessary to meet water quality standards, and 40 C.F.R. § 122.44(d) requires NPDES permits to include conditions that are necessary to achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality. Federal regulations at 40 C.F.R 122.44(d)(1)(i) state, “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 that 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.” Additionally, 40 C.F.R. section 122(d)(1)(vii) requires effluent limits to be developed consistent with any available wasteload allocations developed and approved for the discharge. The process to determine whether a WQBEL is required as described in 40 C.F.R. § 122.44(d)(1)(i) is referred to as a reasonable potential analysis or RPA. Central Valley Water Board staff conducted RPA’s for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. This section includes details of the RPA’s for constituents of concern for the Facility. The entire RPA is included in the administrative record and a summary of the constituents of concern is provided in Attachment G. For

priority pollutants, the SIP dictates the procedures for conducting the RPA. For non-priority pollutants the Central Valley Water Board is not restricted to one particular RPA method, therefore, the RPA's have been conducted based on EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge.

- a. **Constituents with No Reasonable Potential.** Central Valley Water Board staff conducted reasonable potential analyses for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. All reasonable potential analyses are included in the administrative record and a summary of the constituents of concern is provided in Attachment G. WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an instream excursion of an applicable water quality objective; 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. This section only provides the rationale for the reasonable potential analyses for the following constituents of concern that were found to have no reasonable potential after assessment of the data:

- 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 Maximum Contaminant Levels (MCLs) to assist public drinking water systems in managing their drinking water for public welfare considerations, such as taste, color, and odor. The Secondary MCL for aluminum is 200 $\mu\text{g/L}$ for protection of the MUN beneficial use. Title 22 requires compliance with Secondary MCLs 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 Anderson Cottonwood Irrigation District Canal, the receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, Section 4.2.2.1.9; see also, 40 CFR 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 CaCO₃.

- (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 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 measure 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.¹² Effluent and Anderson Cottonwood Irrigation District Canal monitoring data indicate that the pH and hardness values are not similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below, and therefore, the Central Valley Water Board does not expect aluminum to be as toxic in Anderson Cottonwood Irrigation District Canal as in the previously described toxicity tests. The pH of Anderson Cottonwood Irrigation District Canal, the receiving water, ranged from 6.43 to 8.39 with a median of 7.46 based on 22 monitoring results obtained between November 2015 and November 2018. These water conditions typically are circumneutral pH where aluminum is predominately in the form of Al(OH)₃ and non-toxic to aquatic life. The hardness of Anderson Cottonwood Irrigation District Canal ranged from 36 mg/L to 196 mg/L, based on 92 samples from November 2015 and November 2018, 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	Effluent	Receiving Water
pH	standard units	6.0 – 6.5	7.81	7.46
Hardness, Total (as CaCO ₃)	mg/L	12	75	25.05
Aluminum, Total Recoverable	µg/L	87.2 - 390	33.8 – 39.3	82.7 – 261

Local Environmental Conditions and Studies. Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. The pH and hardness of Anderson Cottonwood Irrigation District Canal are similar, as shown in the

¹² “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

table below, and thus the results of these site-specific aluminum toxicity tests are relevant and appropriate for Anderson Cottonwood Irrigation District Canal. As shown in the following table, all EC₅₀¹³ toxicity study result values are at concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in these surface waters and in Anderson Cottonwood Irrigation District Canal, is less toxic (or less reactive) to aquatic species than demonstrated in the toxicity tests that U.S. EPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests U.S. EPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and not applicable to Anderson Cottonwood Irrigation District Canal.

**Central Valley Region Site-Specific Aluminum Toxicity Data
Oncorhynchus mykiss (rainbow trout)**

Discharger	Test Waters	Hardness Value	Total Aluminum EC50 Value	pH	WER
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)

Discharger	Test Waters	Hardness Value	Total Aluminum EC50 Value	pH	WER
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

¹³The effect concentration is a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC₅₀ is a point estimate of the toxicant concentration that would cause an observable adverse effect in 50 percent of the test organisms. The EC₅₀ is used in toxicity testing to determine the appropriate chronic criterion.

Discharger	Test Waters	Hardness Value	Total Aluminum EC50 Value	pH	WER
	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)

Discharger	Test Waters	Hardness Value	Total Aluminum EC50 Value	pH	WER
Manteca	Surface Water/Effluent	124	>8350	9.14	N/C
Modesto	Surface Water/Effluent	120/156	>11900	8.96	>79.6
Yuba City	Surface Water/Effluent	114/164 ¹	>8000	7.60/7.46	>53.5

The Discharger has not conducted a toxicity test for aluminum; however, the City of Auburn conducted two toxicity tests in Auburn Ravine, shown in the previous table. As shown, the test water quality characteristics of Auburn Ravine are critically lower than the Anderson Cottonwood Irrigation District, with the pH at 7.4 and hardness at 16 mg/L as CaCO₃ in comparison to the median pH at 7.46 and the minimum hardness at 36 mg/L as CaCO₃, respectively. Thus, results of site-specific studies conducted in Auburn Ravine would represent conservative assumptions for the Anderson Cottonwood Irrigation District Canal since the canal's water quality characteristics (pH and hardness) are higher, and therefore, aluminum is less toxic to aquatic life in the Anderson Cottonwood Irrigation District Canal. Thus, based on these two similar primary water quality characteristics (pH and hardness) that drive aluminum speciation, the aluminum toxicity within Auburn Ravine is expected to be similar in the Anderson Cottonwood

Irrigation District Canal. Therefore, the Auburn Ravine aluminum toxicity test study is relevant and appropriate in this case for use in determining the specific numerical criteria to be used in determining compliance with the Basin Plan's narrative toxicity objective. The Auburn Ravine aluminum toxicity study resulted in a site-specific aluminum objective at 1,079 µg/L. Thus, these results support the conclusion that the 87 µg/L chronic criterion is overly stringent for the Anderson Cottonwood Irrigation District Canal.

Applicable WQOs. This Order implements the Secondary MCL of 200 µg/L as an annual average for the protection of MUN and implements the Basin Plan's narrative toxicity objective for the protection of aquatic life using an acute (1-hour) criterion and chronic (4-day) criterion of 750 µg/L based on U.S. EPA's NAWQC and the discussion above.

- (b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Aluminum is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one 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. The most stringent objective is the Secondary MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar year annual average effluent aluminum concentrations.

The maximum observed effluent annual average aluminum concentration was 39.3 µg/L based on two samples collected between November 2015 and November 2018. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of aluminum.

ii. **Molybdenum**

- (a) **WQO.** An Agricultural Water Quality Goal for molybdenum of 10 µg/L may be used as a threshold to interpret the narrative chemical constituents Basin Plan objective and ensure protection of the agricultural beneficial use, which is applicable to Cottonwood Creek.
- (b) **RPA Results.** Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, non-conventional, 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. Molybdenum 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.

Based on monitoring data collected from November 2015 through November 2018, the maximum observed effluent molybdenum concentration was 12.5 µg/L. However, since the Agricultural Water Quality Goal is used as a threshold to ensure protection of the agricultural beneficial use, the Central Valley Water Board has conducted the RPA based on the average of all effluent molybdenum concentrations observed over the irrigation season. Based on effluent monitoring data collected during the irrigation/dry season (1 May through 31 October) from November 2015 through November 2018, the average molybdenum concentration was 4.8 µg/L, which is below the Agricultural Water Quality Goal. Therefore, the Central Valley Water Board has determined that molybdenum in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the Agricultural Water Quality Goal.

iii. **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.”
- (b) **RPA Results.** Between November 2015 and November 2018, the effluent pH ranged from 6.5 to 9.15, the upstream receiving water pH ranged from 6.43 to 8.39, and downstream receiving water pH ranged from 6.42 to 8.56. The data indicate that the effluent did exceed the Basin Plan objectives but did not cause or contribute to any identifiable exceedances of pH in the receiving water. There were two instances where the downstream receiving water was out of compliance with the pH Basin Plan objectives; however, neither instance was caused by the Dischargers effluent. On 5 April 2017, the downstream receiving water pH result was 8.56 while the effluent pH result was 7.82, and the upstream receiving water pH result was 8.25. Since the effluent pH was lower than the upstream receiving water pH, it could not have caused or contributed to the downstream pH increase. On 4 October 2017, the downstream receiving water pH was 6.43, and the upstream and effluent pH results were 6.42 and 8.22, respectively. Therefore, the downstream pH exceedance could not have been caused by the effluent.

- (c) **WQBEL's.** Consistent with Order R5-2015-0078, this Order includes an instantaneous minimum effluent limitation of 6.5 and an instantaneous maximum effluent limitation of 9.0.
 - (d) **Plant Performance and Attainability.** Analysis of the pH effluent data showed 1 exceedance of 9 standard units. However, this did not result in an exceedance of Basin Plan objectives. Therefore, immediate compliance with these effluent limitations is likely feasible.
- 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. **Alpha-Hexachlorocyclohexane (BHC)**
 - (a) **WQO.** The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies.
 - (b) **RPA Results.** The maximum effluent concentration (MEC) for alpha-BHC was 0.047 µg/L while the maximum observed upstream receiving water concentration was <0.009 µg/L (non-detect). The MEC occurred in August 2017 and alpha-BHC has not been detected in more recent effluent sampling.

Sample Date	Method Detection Level (MDL)	Reporting Level (RL)	alpha-BHC Effluent Result
23 August 2017	0.002	0.009	0.047
5 September 2018	0.002	0.005	ND

There is no obvious source for alpha-BHC to be present in the discharge, and Lindane (of which alpha-BHC is a component) has been banned for nearly twenty years. Additionally, with only two sampling results the data set for alpha-BHC is very limited.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for alpha-BHC in the

effluent. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

- 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 arsenic, chlorine residual, and settleable solids. 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. **Arsenic**

- (a) **WQO.** DDW has adopted a Primary MCL for Arsenic of 10 µg/L, which is protective of the Basin Plan's chemical constituent objective.
- (b) **RPA Results.** The maximum effluent concentration (MEC) for arsenic was 20.6 µg/L while the maximum observed upstream receiving water concentration was 1.67 µg/L. Therefore, Arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.
- (c) **WQBEL's.** Due to no available mixing, dilution credits are not allowed for development of the WQBEL's for arsenic. This Order contains an average monthly effluent limitation and maximum daily effluent limitation for arsenic of 10 µg/L and 20 µg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use.
- (d) **Plant Performance and Attainability.** Analysis of the arsenic effluent data shows that immediate compliance with these effluent limitations is feasible.

ii. **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 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.”*

The Discharger adds sodium hypochlorite to the cooling towers and fire and cooling water ponds to reduce algal growth and maintain a residual of 0.2–0.5 ppm. The wastewater is dechlorinated using sodium bisulfite and passes through the retention pond before discharging to the canal. Chlorine is extremely toxic to aquatic organisms. Although the Discharger uses sodium bisulfite to dechlorinate the effluent prior to discharge to the Anderson Cottonwood Irrigation District Canal, 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.** Consistent with Order R5-2015-0078, this Order includes an average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) of 0.01 mg/L and 0.02 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 wastewater is dechlorinated using sodium bisulfite and passes through the retention pond before discharging to the canal. The Central Valley

Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Settleable Solids**

- (a) **WQO.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”
- (b) **RPA Results.** The discharge of stormwater and wastewater from the electric generation process has a reasonable potential to cause or contribute to an excursion above the Basin Plan’s narrative objective for settleable solids.
- (c) **WQBEL’s.** Consistent with Order R5-2015-0078, this Order contains an AMEL and MDEL 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 settleable solids effluent data shows that immediate compliance with these effluent limitations is feasible.

iv. **Salinity**

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for 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-7. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective ¹	Secondary MCL ²	U.S. EPA NAWQC	Effluent Average ³	Effluent Maximum
EC (µmhos/cm) or TDS (mg/L)	Varies	EC: 900, 1600, 2200 or TDS: 500, 1000, 1500	N/A	576 or 438	695 or 535
Sulfate (mg/L)	Varies	250, 500, 600	N/A	19	32.7
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	46	72.6

Table F-7. Notes:

- 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 Objectives, Section 4.2.2.1.9 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 MCLs are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
- ³ Maximum calendar annual average.

- (1) **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The NAWQC acute criterion for the protection of freshwater aquatic life for chloride is 860 mg/L and the chronic criterion is 230 mg/L.
- (2) **Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.
- (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.

(b) RPA Results.

(1) **Chloride.** Chloride concentrations in the effluent ranged from 16.6 mg/L to 72.6 mg/L, with a max annual average of 46 mg/L, based on 40 samples collected between November 2015 and November 2018. These levels do not exceed the Secondary MCL or the NAWQC chronic criterion. Upstream receiving water data for chloride are not available.

(2) **Electrical Conductivity or Total Dissolved Solids.** A review of the Discharger's monitoring reports shows a maximum observed annual average effluent EC of 576 μ mhos/cm, with a range from 290 μ mhos/cm to 695 μ mhos/cm. These levels do not exceed the Secondary MCL. The maximum annual average receiving water EC upstream of the discharge at RSW-001 in the Anderson Cottonwood Irrigation District Canal was 205, based on based on 22 samples collected between May 2016 and October 2018, which does not exceed the Secondary MCL recommended level.

Total dissolved solids concentrations in the effluent ranged from 203 mg/L to 535 mg/L, with a maximum annual average of 438 mg/L, based on 157 samples collected between November 2015 and November 2018. The maximum annual average receiving water total dissolved solids concentration upstream of the discharge at RSW-001 in the Anderson Cottonwood Irrigation District Canal was 205 mg/L, based on 10 samples collected between May 2016 and November 2018, which does not exceed the Secondary MCL recommended level or the NAWQC chronic criterion. This demonstrates the discharge does not cause or contribute to an exceedance of the Secondary MCL in the Anderson Cottonwood Irrigation District (ACID) Canal.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 9.56 mg/L to 32.7 mg/L, with a maximum annual average of 18 mg/L, based on 40 samples collected between November 2015 and November 2018. The maximum observed receiving water sulfate concentration was ND based on 2 samples collected between August 2017 and September 2018. Based on this data the discharge does not have reasonable potential to cause or contribute to the applicable objectives for sulfate.

(c) **WQBELs.** When only considering the numeric water quality standards for salinity and the concentration of salinity coming from the discharge, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the Discharger discharges to the Sacramento River and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters.

The EC concentration of the effluent is greater than the background concentration observed in the ACID Canal, therefore limited degradation is occurring in a high quality water. Under the State Anti-Degradation Policy, the waste discharge requirements must result in the best practicable treatment or control (BPTC) 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. In this case, the Discharger is currently utilizing BPTC, and a performance-based effluent limitation of 635 µmhos/cm for EC to be applied as an annual average will limit the discharge to current levels (thus ensuring that BPTC continues to be met). This performance-based effluent limitation represents the maximum annual average effluent EC concentration plus 10 percent for a calendar year using data from 2015 through 2018.

- (d) **Plant Performance and Attainability.** Based on the analysis of existing effluent data, the maximum annual average for electrical conductivity was 576 µmhos/cm. Based on the sample results for the effluent, it appears that immediate compliance with this effluent limitation is feasible.

4. WQBEL Calculations

- a. This Order includes WQBEL’s for arsenic, chlorine residual, pH, and settleable solids. The general methodology for calculating WQBEL’s based on the different criteria/objectives is described in subsections IV.C.5.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:

$$ECA = C + D(C - B) \quad \text{where } C > B, \text{ and}$$

$$ECA = C \quad \text{where } C \leq B$$

where:

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

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples.

Primary and Secondary MCLs. For non-priority pollutants with primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the primary MCL and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

For non-priority pollutants with secondary MCL's that protect public welfare (e.g., taste, odor, and staining), WQBEL's were calculated by setting the LTA equal to the secondary MCL and using the AMEL multiplier to set the AMEL. The MDEL was calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

- c. **Aquatic Toxicity Criteria.** For constituents with acute and chronic aquatic toxicity criteria, the WQBEL's are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and LTA_{chronic}) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- d. **Human Health Criteria.** For constituents with human health criteria, the WQBEL's are calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

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

where:

- mult*_{AMEL} = statistical multiplier converting minimum LTA to AMEL
- mult*_{MDEL} = statistical multiplier converting minimum LTA to MDEL
- M*_A = statistical multiplier converting acute ECA to LTA_{acute}
- M*_C = statistical multiplier converting chronic ECA to LTA_{chronic}

**Summary of Water Quality-Based Effluent Limitations
Discharge Point No. 001**

Table F-8. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitation	Maximum Daily Effluent Limitation	Instantaneous Minimum Effluent Limitation	Instantaneous Maximum Effluent Limitation
Conventional Pollutants					
pH	standard units	--	--	6.5	9.0
Priority Pollutants					
Arsenic	µg/L	10	20	--	--
Non-Conventional Pollutants					
Chlorine, Total Residual	mg/L	0.01	0.02	--	--
Settleable Solids	ml/L	0.1	0.2	--	--

5. Whole Effluent Toxicity (WET)

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

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at Section 3.1.20.) 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. Acute whole effluent toxicity is not a priority pollutant. 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." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

Minimum for any one bioassay	70%
Median for any three 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 Section 3.1.20.) The table below is chronic WET testing performed by the Discharger from 23 August 2017 through 4 September 2018. This data was used 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.

Table F-9. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow Pimephales promelas Survival (TUc)	Fathead Minnow Pimephales Growth (TUc)	Water Flea Ceriodaphnia dubia Survival (TUc)	Water Flea Ceriodaphnia dubia Reproduction (TUc)	Green Algae Selenastrum capricornutum Growth (TUc)
08/23/2017	1	1	1	1	1
09/04/2018	1	1	1	1	1

- i. **RPA.** No dilution has been granted for chronic whole effluent toxicity. Chronic toxicity testing results exceeding 1.3 chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective. Based on chronic toxicity testing conducted between

August 2017 and September 2018 the maximum chronic toxicity result was 1 TUC with a percent effect of less than 25 percent, therefore, the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan's narrative toxicity objective.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations – Not Applicable

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires maximum daily and average monthly discharge limitations for all dischargers other than POTW's unless impracticable. For pH and chlorine residual, AMEL's and MDEL's have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using alternative averaging periods pH and settleable solids 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).

- a. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order with the exception of flow.
 - i. Flow. Order R5-2015-0078 included flow as an effluent limit based on the Facility's maximum daily design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order. Flow as a discharge prohibition adequately regulates the Facility, does not allow for an increase in the discharge of pollutants, and does not constitute backsliding.

4. Antidegradation Policies

- a. **Surface Water.** The permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and the State Anti-Degradation Policy. This Order provides for an increase in the volume and mass of pollutants discharged and may therefore result in limited degradation to surface water. The *State Anti-Degradation Policy* generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality waters unless it has been shown that:
 - i. The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;

- ii. The degradation will not unreasonably affect present and anticipated future beneficial uses;
- iii. The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and
- iv. The degradation is consistent with the maximum benefit to the people of the state.

Based on review of water quality data of the proposed discharge, the incremental increase in degradation will not cause a violation of water quality objectives in the receiving surface water for the pollutants typical of the discharge (EC, TDS, COD, TSS, tannins & lignins, metals). The increase will not have significant impacts on aquatic life, which is the beneficial use most likely affected by these pollutants. The Central Valley Water Board considers the use of unlined ponds to store and treat process water to be an industry-standard practice that is an appropriate component of an effective suite of best management practices. This Order, specifically the Best Management Practices and Pollution Prevention measures required in section VI.D.3, will require the Discharger to implement BPTC. Additionally, a performance-based effluent limit for EC of 635 $\mu\text{mhos/cm}$ has been included in this order to ensure that BPTC continues to be met. The increase in the discharge allows for more flexible wastewater management for a biomass power generation facility and large regional employer and is considered to be of maximum benefit to the people of the State.

The Discharger will also be required to confirm that the discharge has not resulted in pollution or nuisance in a report, the Anti-Degradation Re-evaluation, which the Discharger will submit as part of its permit renewal application. Should the Anti-Degradation Re-evaluation reveal degradation inconsistent with the State Anti-Degradation Policy, the Discharger must propose additional treatment or control measure to further limit any impacts from the discharge.

- b. **Groundwater.** The Discharger uses an unlined retention pond for primary treatment of the process wastewater prior to discharge. Percolation from the unlined retention pond may therefore result in limited degradation of the underlying groundwater. The *State Anti-Degradation Policy* generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality waters unless it has been shown that:
 - i. The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
 - ii. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - iii. The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and

- iv. The degradation is consistent with the maximum benefit to the people of the state.

Though the pond is unlined, the Central Valley Water Board considers the use of unlined ponds to store and treat process water to be an industry-standard practice that is an appropriate component of an effective suite of best management practices. This Order, specifically the Best Management Practices and Pollution Prevention measures required in section VI.D.3, will require the Discharger to implement BPTC. In addition, the Central Valley Water Board finds, based on existing information, that the limited groundwater degradation that may occur under this Order will not result in exceedances of any applicable groundwater water quality objectives or in any impacts to beneficial uses. Therefore, pollution or nuisance will not occur. Lastly, the limited degradation that may occur under this Order inheres to the maximum benefit of the people of the State because it will occur due to the operation of a biomass power generation facility that 1) is an important economic driver to the region, 2) helps utilities meet State-mandated requirements for energy production from a renewable resource, and 3) is an important receptor of waste from forest thinning and fuels reduction programs throughout the State.

The Discharger will also be required to confirm that the discharge has not resulted in pollution or nuisance in a report, the Anti-Degradation Re-evaluation, which the Discharger will submit as part of its permit renewal application. Should the Anti-Degradation Re-evaluation reveal degradation inconsistent with the State Anti-Degradation Policy, the Discharger must propose additional treatment or control measure to further limit any impacts from the discharge.

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 a requirement to implement BMP's as part of the Discharger's SWPPP. The requirement to implement BMP's as part of the Discharger's SWPPP are discussed in section IV.B.2. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

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. 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-10. Summary of Final Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Maximum Daily Effluent Limitations	Instantaneous Minimum Effluent Limitations	Instantaneous Maximum Effluent Limitations	Basis ¹
Conventional Pollutants						
pH	standard units	--	--	6.5	9.0	PO
Priority Pollutants						
Arsenic	µg/L	10	20	--	--	MCL
Non-Conventional Pollutants						
Chlorine, Total Residual	mg/L	0.01	0.02	--	--	NAWQC
Settleable Solids	ml/L	0.1	0.2	--	--	BP
Acute Toxicity	% Survival	--	70 ³ /90 ⁴	--	--	BP
Electrical Conductivity @ 25 °C	µmhos/cm	635 ⁶	--	--	--	PB

Table F-10 Notes:

- 1 PO – Based on effluent limitations in previous Order R5-2015-0078.
BP – Based on water quality objectives contained in the Basin Plan.
NAWQC – Based on U.S. EPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
MCL – Based on the Primary Maximum Contaminant Level.
PB – Based on Facility performance
- 2 The discharge of process water (non-storm water and under drain water) shall not exceed 4.5 MGD.
- 3 Minimum for any one bioassay.
- 4 Median for any three consecutive bioassays.
- 5 There shall be no chronic toxicity in the effluent discharge.
- 6 Expressed as an annual average

E. Interim Effluent Limitations – Not Applicable**F. Land Discharge Specifications**

1. **Domestic Sewage.** Consistent with Order R5-2015-0078, this Order requires the Discharger to properly operate, maintain, and monitor the domestic sewage collection, treatment, and disposal system.

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

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

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

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- b. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- c. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE) or, under certain circumstances, may be allowed to participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE. This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE and/or TES
- d. **Mixing Zone and Dilution Studies.** Section 1.4 of the SIP established procedures for calculating effluent limitations. Included in the procedures is determination of a dilution credit, which the Central Valley Water Board may

approve or disapprove at its discretion. However, the Discharger has not developed the information needed to determine a dilution credit. Consequently, this Order establishes final effluent limitations based on zero dilution. This Order includes a reopener that allows effluent limitations to be revised if a mixing zone and dilution study demonstrates that dilution credits are appropriate.

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. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS). On 31 May 2018, as part of the CV-SALTS initiative, the Central Valley Water Board approved Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the Amendments would impose certain new requirements on salt and nitrate discharges. More information regarding these Amendments can be found at the [Central Valley Water Boards' Salinity web page](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/) (https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

If the Amendments ultimately go into effect, this Order may be amended or modified to incorporate any newly-applicable requirements.

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 Section 3.1.20.) Based on whole effluent chronic toxicity testing performed by the Discharger from August 2017 through September 2018, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring to demonstrate compliance with the Basin Plan's narrative toxicity objective. If the discharge exceeds the chronic toxicity monitoring trigger this provision requires the Discharger either participate in an approved Toxicity Evaluation Study (TES) or conduct a site-specific Toxicity Reduction Evaluation (TRE).

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent. Determining the cause of toxicity

can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low-level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, the Central Valley Clean Water Association (CVCWA), in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Chart (Figure F-1), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

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

- i. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.
- ii. *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.
- iii. *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition*, EPA 600/6-91/003, February 1991.
- iv. *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA/600/6-91/005F, May 1992.
- v. *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA/600/R-92/080, September 1993.
- vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA 600/R-92/081, September 1993.
- vii. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition*, EPA-821-R-02-012, October 2002.
- viii. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA-821-R-02-013, October 2002.
- ix. *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991.

Figure F-1 WET Accelerated Monitoring Flow Chart

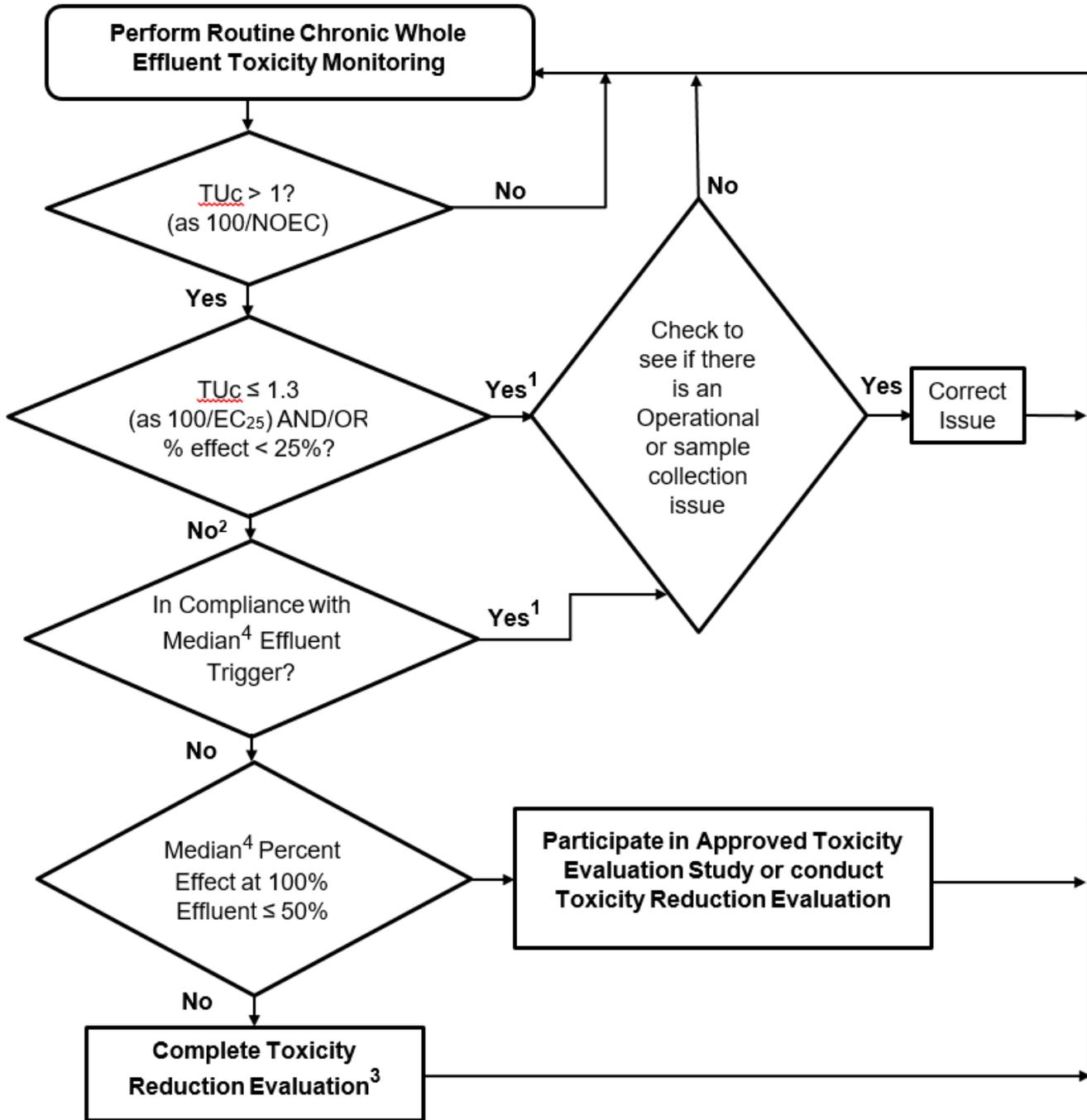


Figure F-1 Notes:

1. The Discharger may participate in an approved TES if the discharge has exceeded the chronic toxicity effluent monitoring trigger twice or more in the past 12 month period and the cause is not identified and/or addressed.
2. The Discharger may elect to take additional samples to determine the 3 sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.

- 3. The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
- 4. See Compliance Determination Section VII.L for procedures for calculating 6-week median.

- b. **Anti-Degradation Re-evaluation.** The Discharger is required to submit an Anti-Degradation Re-evaluation, as specified in section VI.C.2.b, to confirm that the discharge continues to be consistent with the State Anti-degradation Policy.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** An updated Evaluation and Minimization Plan for salinity is required to be maintained by this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to the Anderson Cottonwood Irrigation District Canal.
- b. **Storm Water Pollution Controls.** This Order requires the Discharger to implement BMP's, including treatment controls where necessary, in order to support attainment of water quality standards. The use of BMP's to control or abate the discharge of pollutants is allowed by 40 C.F.R. section 122.44(k)(3) because effluent limitations are infeasible and BMP's are reasonably necessary to achieve effluent limitations and are standards or to carry out the purposes and intent of the CWA. (40 CFR 122.44(k)(4).)

This Order requires the Discharger to develop and implement a site-specific SWPPP for the Facility. The SWPPP is necessary to identify potential sources of pollutants that may come in contact with storm water and to control or abate the discharge of pollutants to surface water or groundwater.

In order to maintain an accurate and useful SWPPP, the SWPPP must be revised when whenever there is a change in construction, site operation, or maintenance, which may affect the discharge of significant quantities of pollutants to surface water or groundwater. The SWPPP must also be amended if there are violations of this Order, or the Discharger has not achieved the general objectives of controlling pollutants in the storm water discharges.

4. Construction, Operation, and Maintenance Specifications

- a. **Storm Water, Retention, and Fire/Cooling Water Ponds Operating Requirements.** The operation and maintenance specifications are necessary to ensure proper operation of the ponds and minimize the potential for impacts to groundwater quality, to protect the beneficial uses of the groundwater, and to prevent nuisance conditions. In addition, reporting requirements related to use of the ponds are included to monitor the use of the ponds and the potential impact on groundwater.

5. Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable**6. Other Special Provisions**

- a. **Sludge, Wood Waste, and/or Ash Storage.** Sludge disposal provisions are necessary to ensure proper disposal of collected screening, sludges, wood ash, wood waste, and other solids removed from liquid wastes, ponds, or other sources in a manner that is consistent with Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Section 20005, et seq, and approved by the Executive Officer.

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 – Not Applicable**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. Monitoring Location EFF-001
 - a. Effluent monitoring frequencies and sample types for flow (daily), oil and grease (semi-annually), pH (weekly), TSS (semi-annually), chemical oxygen demand (semi-annually), chloride (monthly), chlorine residual (weekly), electrical conductivity (weekly), general minerals (annually), molybdenum (semi-annually), settleable solids (weekly), sulfate (monthly), tannins and lignins (semi-annually), temperature (weekly), total dissolved solids (weekly), and turbidity (monthly), chromium (semi-annual), hardness (monthly), vanadium (semi-annual), and total dissolved solids (monthly) have been retained from Order R5-2015-0078 to determine compliance with effluent limitations for these parameters.
 - b. Monitoring data collected during the term of Order R5-2015-0078 indicates that arsenic has a reasonable potential to cause or contribute to an in-stream excursion above the primary MCL. Therefore, this Order establishes monthly monitoring for arsenic.

- c. Insufficient data was available over the term of Order R5-2015-0078 to determine if alpha-BHC in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objective. Therefore, this Order establishes semi-annual effluent monitoring requirements for alpha-BHC to collect sufficient data to determine whether reasonable potential exists.
 - d. This Order establishes monthly effluent monitoring requirements for dissolved organic carbon in order to collect sufficient data for calculating aquatic life criteria for aluminum in accordance with the 2018 NAWQC.
 - e. 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 quarterly during the second year of the permit term. See section IX.D of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.
3. Monitoring Location EFF-003
- a. Effluent monitoring frequencies and sample types for flow (daily), pH (monthly), electrical conductivity (monthly), and general minerals (annually) have been retained from Order R5-2015-0078 to characterize the groundwater discharge from the westerly under drain system for these parameters.
4. Water Code section 13176, subdivision (a), states: "The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code." The DDW accredits 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 during the second and third years to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required during the second and third years of the permit term 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. Monitoring Locations RSW-001 and RSW-002
 - i. Receiving water monitoring frequencies and sample types for flow (monthly), pH (monthly), electrical conductivity (monthly), temperature (monthly), total dissolved solids (quarterly), and turbidity (monthly) have been retained from Order R5-2015-0078 to determine compliance with the applicable receiving water limitations and characterize the receiving water for these parameters.
 - ii. This Order establishes monthly receiving water monitoring requirements for dissolved organic carbon at Monitoring Locations RSW-001 and RSW-002 in order to collect sufficient data for calculation aquatic life criteria for aluminum in accordance with the 2018 NAWQC.
 - iii. 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 upstream receiving water monitoring for priority pollutants and other pollutants of concern at Monitoring Location RSW-001 quarterly during the second year of the permit term, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See section IX.D of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.
- c. Monitoring Location RSW-003
 - i. Previous Order R5-2015-078 allowed the Discharger to determine compliance with the receiving water limitation for temperature at RSW-001 and either RSW-002 or RSW-003. If the temperature reading at the RSW-002 monitoring location indicated that there was an exceedance of the receiving water limitation for temperature, Order R5-2015-0078 required the Discharger to collect a temperature reading at the RSW-003 monitoring location to determining compliance. This Order maintains the aforementioned RSW-003 monitoring requirement.

2. Groundwater

- a. Water Code section 13267 states, in part, *“(a) A Regional Water Board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation..., the Regional Water Board may require that any person*

who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.” The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, a Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program is issued pursuant to Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

- b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with the State Anti-Degradation Policy. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with the State Anti-Degradation Policy and the Basin Plan.
- c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Central Valley Water Board plans and policies, including the State Anti-Degradation Policy. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

E. Other Monitoring Requirements

1. Domestic Waste Treatment System Monitoring
Consistent with Order R5-2015-0078, this Order requires monthly inspection of the domestic waste treatment system.
2. Landscape Irrigation System Monitoring
Consistent with Order R5-2015-0078, this Order requires monitoring of wastewater supplied to the landscape irrigation system.
3. Log Deck Spray Area Monitoring
Log Deck Spray Area monitoring is required to ensure that the discharge to the spray area complies with the Log Deck Spray Area land discharge specifications and to provide water quality data for determining impacts, if any, to groundwater quality in the vicinity of the spray area.
4. Fire and Cooling Water Ponds Monitoring
Fire and cooling water pond monitoring is retained from Order R5-2015-0078 to ensure proper operation of the ponds. Weekly monitoring for freeboard and monthly monitoring for pH has been retained from Order R5-2015-0078.
5. Precipitation Monitoring
Precipitation monitoring is necessary to assess the amount of rainfall that falls on the Facility.
6. Ash Monitoring
The annual report is necessary to determine the quantity of ash generated at the Facility and to ensure the proper handling of such material.
7. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program
Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires all dischargers under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S.EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from their own laboratories or their contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall submit annually the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance

Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for Wheelabrator Shasta Energy Company, Inc. 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 Persons

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 on the Central Valley Water Board's website, posting at the Facility entrance, posting at the nearest city hall or county courthouse, and posting at the nearest post office (if allowed).

The public had access to the agenda and any changes in dates and locations through the [Central Valley Water Board's Board Meeting Calendar web page](http://www.waterboards.ca.gov/centralvalley/board_info/meetings/) (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 16 September 2019.

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: 10/11 October 2019
Time: 8:30 a.m.
Location: Redding City Hall
777 Cypress Avenue
Redding, CA 96001

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 person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The

State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

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

Or by email at waterqualitypetitions@waterboards.ca.gov

[Instructions on how to file a petition for review](#) can be found on the State Water Boards' Water Quality Petitions web page (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 (530) 224-4845.

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 Michael Collins at (530) 224-4785.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Arsenic	µg/L	20.6	1.67	10	340	150	--	--	--	10	Yes
Aluminum, Total Recoverable	µg/L	39.3	261	50	750	87	--	--	--	50	No ⁴
Alpha-BHC	µg/L	0.047	<0.002	0.0039	--	--	0.0039	0.013	ND	--	Insufficient Data
Chloride	mg/L	72.6	--	106	860 ²	230 ³	--	--	--	250	No
Electrical Conductivity @ 25°C	µmhos/cm	535 ¹	205 ¹	900	--	--	--	--	--	900	No ⁶
Molybdenum	µg/L	12.5	0.43113	10	--	--	--	--	10 ⁵	--	No
Sulfate	mg/L	19 ¹	<1	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	535	344	450	--	--	--	--	450 ⁵	500	No

Table Notes:

- ¹ Represents the maximum observed average annual concentration for comparison with the Secondary MCL.
- ² U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
- ³ U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-hour average.
- ⁴ See discussion in Fact Sheet section IV.C.3.
- ⁵ Represents the Agricultural Water Quality Goal for molybdenum used to interpret the Basin Plan’s narrative chemical constituents’ objective.
- ⁶ Performance-based effluent limits required to ensure continued implementation of BPTC per State Anti-Degradation Policy

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
DNQ = Detected but not quantified

ATTACHMENT H – HUMAN HEALTH WQBEL’S CALCULATIONS

Parameter	Units	Criteria	Maximum Background Concentration	CV Eff	Dilution Factor	MDEL/ AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Arsenic	µg/L	10	1.67	0.6 ¹	--	2.01	1.55	10	20.1	--

Table Note:

¹ Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.