CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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ORDER R5-2016-0002
NPDES NO. CA0084255

WASTE DISCHARGE REQUIREMENTS FOR THE LINCOLN CENTER ENVIRONMENTAL REMEDIATION TRUST GROUNDWATER TREATMENT SYSTEM SAN JOAQUIN COUNTY

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

Table 1. Discharger Information

Discharger	Lincoln Center Environmental Remediation Trust
Name of Facility	Groundwater Treatment System
Facility Address	6471 Pacific Avenue
	Stockton, CA 95207
	San Joaquin County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Groundwater	38º 0' 0.89"	121º 19' 54.1"	Fourteen Mile Slough

Table 3. Administrative Information

This Order was adopted on:	18 February 2016
This Order shall become effective on:	1 April 2016
This Order shall expire on:	31 March 2021
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:	2 October 2020
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Minor

I, Pamela C. Creedon, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **18 February 2016**.

Original Signed by Adam Laputz for

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PAMELA C. CREEDON, Executive Officer

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TABLES

ATTACHMENTS

I. FACILITY INFORMATION

Information describing the Lincoln Center Environmental Remediation Trust, Groundwater Treatment System (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

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

A. Legal Authorities. This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters.

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

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

D. Monitoring and Reporting. 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."*

The Discharger owns and Geosyntec Consultants operates the Facility subject to this Order. The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

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

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

THEREFORE, IT IS HEREBY ORDERED that Order R5-2011-0055-01 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 past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

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

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

C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

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

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants					
pH	standard units	--	--	6.5	8.5
Priority Pollutants					
Arsenic, Total Recoverable	µg/L	23	29	--	--
Non-Conventional Pollutants					
Barium, Total Recoverable	µg/L	415	486	--	--
Electrical Conductivity @ 25˚C	µmhos/cm	1,500	--	--	--
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	--	50	--	--
Volatile Organic Compounds[1]	µg/L	--	0.5	--	--

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum

[1] Includes all volatile organic carbons (VOC's) identified as constituents of concern in influent groundwater, including: benzene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes.

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; and
ii. 90%, median for any three consecutive bioassays.

c. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

d. **Average Daily Discharge Flow**. The average daily discharge flow shall not exceed 0.25 million gallons per day (MGD).

e. **Methylmercury. Effective 31 December 2030**, the effluent calendar annual methylmercury load shall not exceed 0.010 grams/year, in accordance with the Delta Mercury Control Program.

f. **Diazinon and Chlorpyrifos.** Effluent diazinon and chlorpyrifos concentrations shall not exceed the sum of one (1.0) as identified below:

i. **Average Monthly Effluent Limitation**

$$S_{AMEL} = \frac{C_{D\ AVG}}{0.079} + \frac{C_{C\ AVG}}{0.012} \leq 1.0$$

$C_{D\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L.
$C_{C\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L.

ii. **Maximum Daily Effluent Limitation**

$$S_{MDEL} = \frac{C_{D\ MAX}}{0.16} + \frac{C_{C\ MAX}}{0.025} \leq 1.0$$

$C_{D\text{-}max}$ = maximum daily diazinon effluent concentration in µg/L.
$C_{C\text{-}max}$ = maximum daily chlorpyrifos effluent concentration in µg/L.

2. Interim Effluent Limitations

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

a. **Mercury, total. Effective immediately and through 31 December 2030**, the effluent calendar year annual total mercury load shall not exceed 0.18 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (Section IV.A.e).

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Fourteen Mile Slough:

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.** The dissolved oxygen concentration to be reduced below 5.0 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 C.F.R. 131.12.);
    e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
    f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15; nor
    g. Thiobencarb to be present in excess of 1.0 µg/L.
10. **Radioactivity:**
    a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

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

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

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

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

15. **Temperature.** The natural temperature to be increased by more than 5°F.

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 – Not Applicable

VI. PROVISIONS

A. Standard Provisions

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

2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:

    a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

    b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

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

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

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

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

The causes for modification include:

i. *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

ii. *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

iii. *Change in sludge use or disposal practice.* Under 40 C.F.R. section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

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

ii. Controls any pollutant limited in the Order.

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

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

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

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

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

i. Safeguard to electric power failure:

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

   ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.

   iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

   The technical report shall:

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

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

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

   The Central Valley Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to

minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

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

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

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

n. Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).

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

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

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

q. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, including, but not limited to:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

c. **Mercury.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. This Order may be reopened to address changes to the Delta Mercury Control Program.

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

this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

e. **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.

f. **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.

g. **Performance-based Effluent Limitations for Arsenic and Barium**. If the Discharger submits a report describing changes in the concentration of arsenic or barium in groundwater influent to the treatment system that are expected or encountered due to naturally occurring processes (e.g., significant changes in precipitations patterns, increases or decreases in groundwater elevations, or changes in the distribution of VOC's requiring adjustment of pumping rates of installation of additional extraction wells), this Order may be reopened to modify the performance-based effluent limitations for arsenic and/or barium.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Toxicity Reduction Evaluation Requirements.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in MRP section V. Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the numeric toxicity monitoring trigger during accelerated monitoring established in this Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TRE's are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

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

ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is >1 TUc (where TUc = 100/NOEC). The monitoring trigger is

not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

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

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

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

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

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

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

(3) A schedule for these actions.

b. **Phase 1 Methylmercury Control Study.** In accordance with the Basin Plan's Delta Mercury Control Program and the compliance schedule included in this Order for methylmercury (Section VI.C.7.a), the Discharger shall continue to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury waste load allocation. A workplan was submitted by CVCWA on 20 April 2013.

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

effectiveness of using inorganic (total) mercury controls to control methylmercury discharges.

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

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

3. Best Management Practices and Pollution Prevention

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

b. **Mercury Exposure Reduction Program.** The Discharger shall participate in a Mercury Exposure Reduction Program (MERP) in accordance with the Basin Plan's Delta Mercury Control Program. The Discharger elected to provide financial support in the collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the MERP objective, elements, and the Discharger's coordination with other stakeholders. The minimum requirements for the exposure reduction work plan are outlined in the Fact Sheet (Attachment F, section VI.B.3.b). The Discharger shall integrate or, at a minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities. The Discharger shall continue to participate in the group effort to implement the work plan.

4. Construction, Operation and Maintenance Specifications – Not Applicable

5. Special Provisions for Municipal Facilities (POTW's Only) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. **Compliance Schedule for Final Effluent Limitations for Methylmercury.** This Order requires compliance with the final effluent limitations for methylmercury by **31 December 2030**. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations:

Task		Date Due
	Phase 1	
i.	**Submit CVCWA Coordinated Methylmercury Control Study Work Plan**	**Complete**
ii.	**Prepare and Implement Mercury Evaluation and Minimization Plan (MEMP).** Submit a plan to identify and address sources of mercury discharged from the Facility.	**1 October 2016**
iii.	**Implement CVCWA Coordinated Methylmercury Control Study Work Plan**	**Immediately following Executive Officer approval**
iv.	**Annual Progress Reports**	**30 January, annually[1]**
v.	**Submit Final CVCWA Coordinated Methylmercury Control Study**	**20 October 2018[2]**
	Phase 2	
vi.	**Implement methylmercury control programs**	**TBD[3]**
vii.	**Full Compliance**	**31 December 2030[3]**

[1] Beginning **30 January 2017** and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including a summary of total mercury and methylmercury monitoring results.

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

[3] To be determined. Following Phase 1 the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations, final compliance date, etc. Consequently, the start of Phase 2 and the final compliance date is uncertain at the time this Order was adopted.

VII. COMPLIANCE DETERMINATION

A. Methylmercury and Total Mercury Mass Loading Effluent Limitations (Sections IV.A.1.e and IV.A.2.a). The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program, and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.

2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

B. Volatile Organic Compounds (VOC's) Maximum Daily Effluent Limitation (Section IV.A.1.a). VOC's include all VOC's identified as constituents of concern in influent groundwater, including: benzene, 1,1-dichloroethylene, 1,2-dichloroethane, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes. The maximum daily effluent limitation of 0.5 µg/L applies to each VOC.

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

D. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.c). Compliance with the accelerated monitoring and TRE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

E. Use of Delta Regional Monitoring Program and other Receiving Water Data to determine compliance with Receiving Water Limitations. Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be conducted by the Discharger under this permit, will not be used directly to determine that the discharge is in violation of this Permit. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger that is not conducted by the Delta RMP and submit that monitoring data. As described in Section VIII of

Attachment E, such data may be used, if scientifically defensible, in conjunction with other receiving water data, effluent data, receiving water flow data, and other pertinent information to determine whether or not a discharge is in compliance with this Permit.

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

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

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

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

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

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

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

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

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

Detected, but Not Quantified (DNQ)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the

dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or Central Valley Water Board.

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

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

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

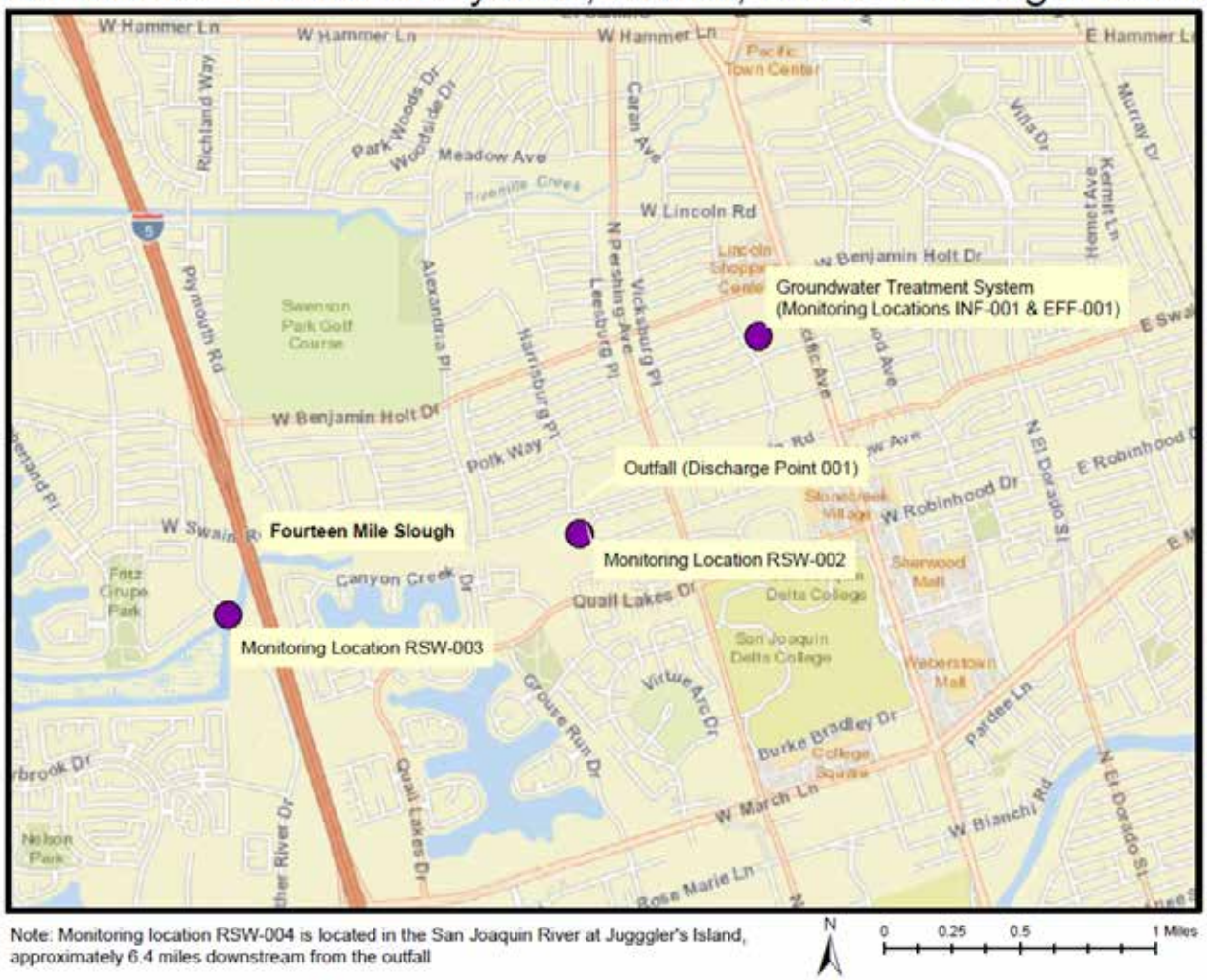
$$s = (\sum [(x - m)^2]/(n - 1))^{0.5}$$

where:
x is the observed value;
m is the arithmetic mean of the observed values; and
n is the number of samples.

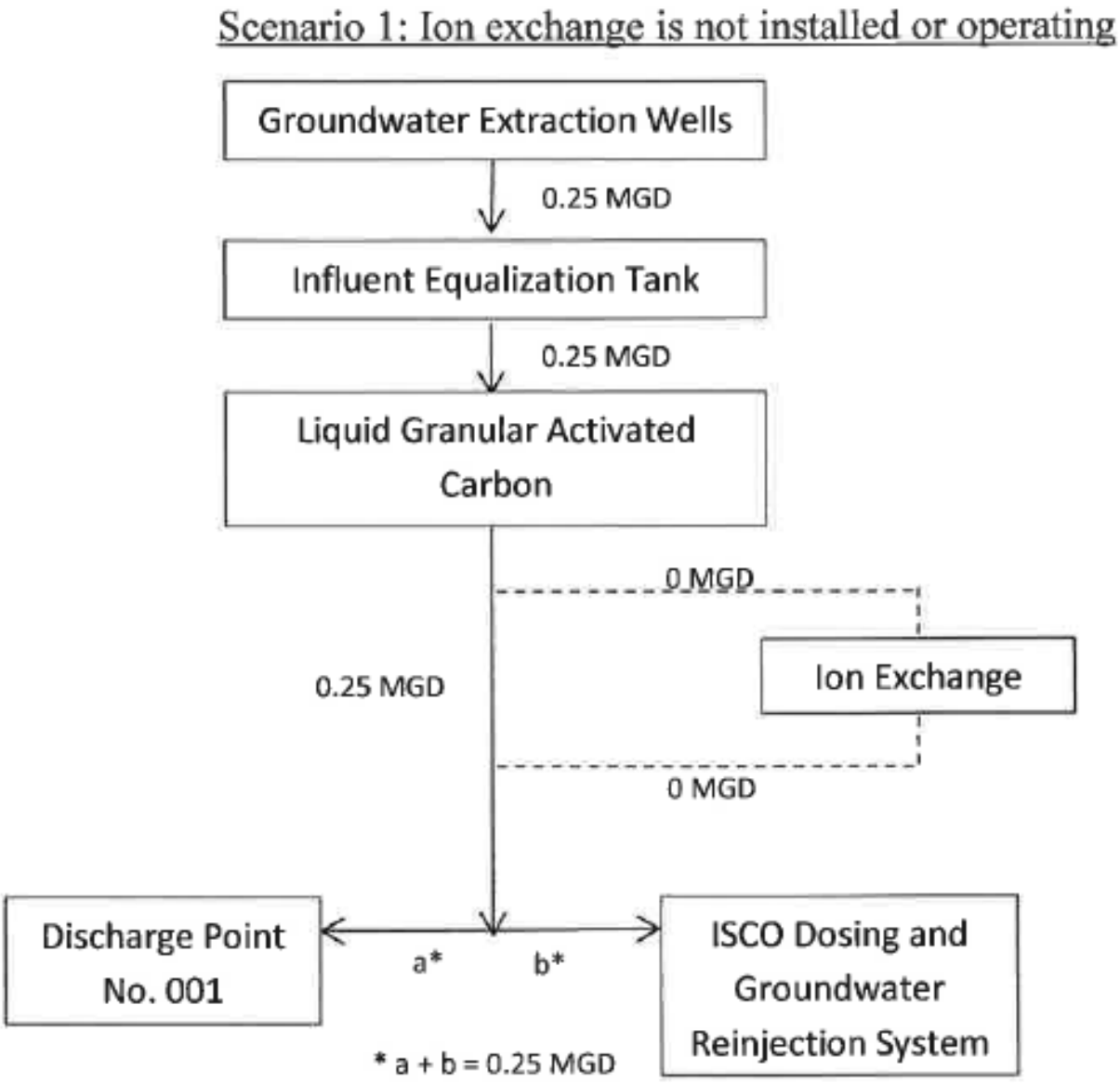
Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first 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

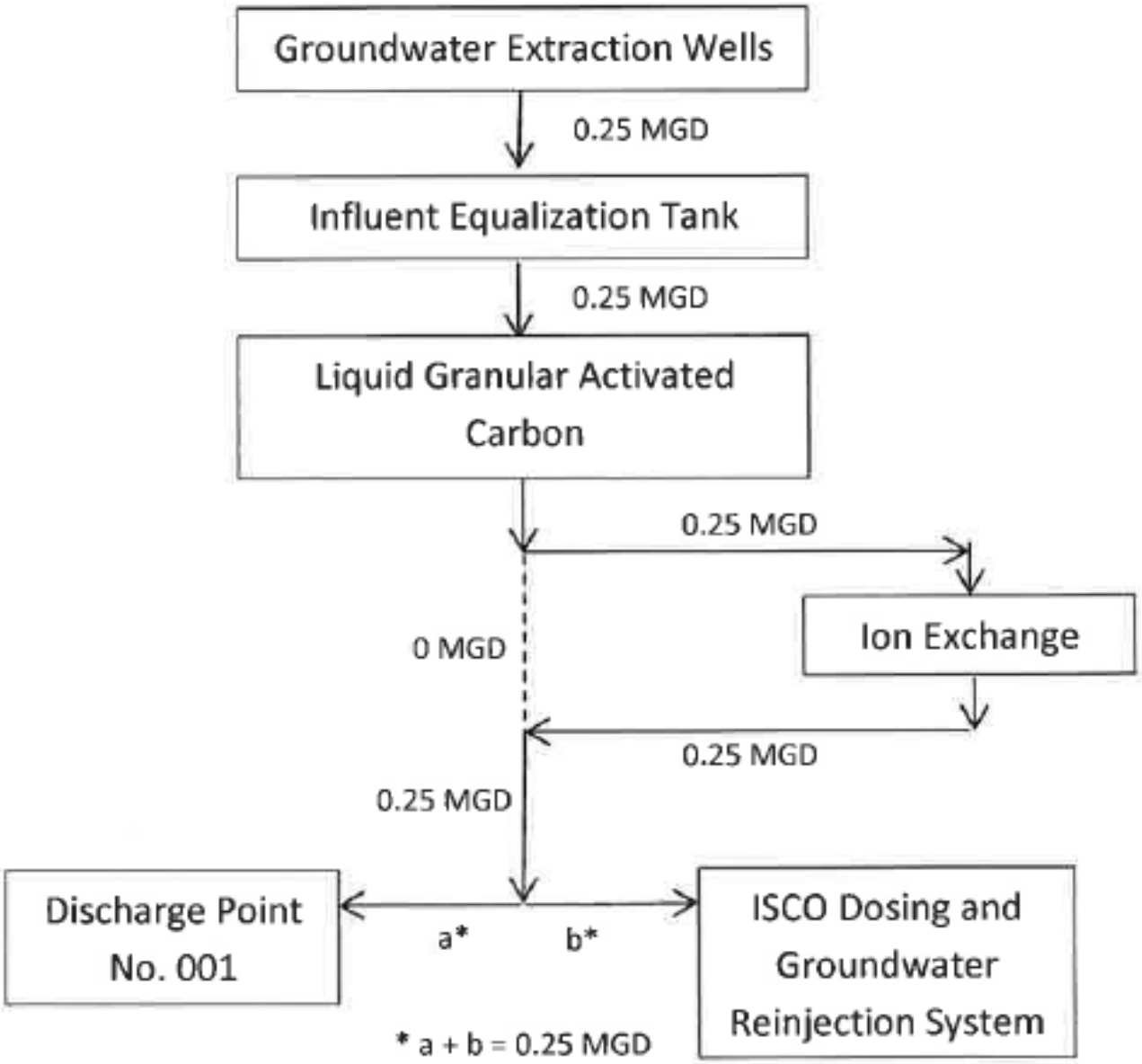
Map of Lincoln Center Environmental Remediation Trust Groundwater Treatment System, Outfall, and Monitoring Locations



ATTACHMENT C – FLOW SCHEMATIC



Scenario 2: Ion exchange is installed *and* operating



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

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

F. Inspection and Entry

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, § 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Central Valley Water Boardas required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. In the case of pollutants for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants. (40 C.F.R. § 122.41(j)(4); 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

2. All permit applications shall be signed by 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).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Central Valley Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

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

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

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. § 122.41(l)(1)(ii).)

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

G. Anticipated Noncompliance

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

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. 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 (µg/L) (40 C.F.R. § 122.42(a)(1)(i));
    b. 200 µg/L for acrolein and acrylonitrile; 500 µg/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 (µg/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).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.

B. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

F. Laboratories analyzing monitoring samples shall be certified by DDW, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent can be obtained after the last connection before the wastes enter the treatment process.
001	EFF-001	A location where a representative sample of the effluent can be obtained after the last connection through which wastes can be admitted into the outfall to the storm drain system. Latitude: 38° 0’ 29.73” Longitude: 121° 19’ 19.70”
--	RSW-002	In Fourteen Mile Slough, 200 feet downstream from the outfall from the storm drain system.
--	RSW-003	In Fourteen Mile Slough at the Feather River Drive Bridge, approximately 5,500 feet downstream from the outfall from the storm drain system. Latitude: 37° 59’ 48” N Longitude: 121° 21’ 00” W
--	RSW-004	In the San Joaquin River at Juggler’s Island, approximately 6.4 miles downstream from the outfall from the storm drain system. Latitude: 37° 59’ 36” N Longitude: 121° 24’ 48” W

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Non-Conventional Pollutants				
Electrical Conductivity @ 25˚C	µmhos/ cm	Grab[1]	1/Quarter	[2]
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	Grab	1/Quarter	[2]
Volatile Organic Compounds	µg/L	Grab	1/Quarter	[2,3]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] A hand-held field meter may be used, provided the meter utilizes 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] 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] All volatile organic compounds (VOC's) listed as U.S. EPA Priority Pollutants using analytical method 8260B.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
pH	standard units	Grab[1]	1/Month	[2]
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	1/Month	[2,3]
Chromium VI, Total Recoverable	µg/L	Grab	1/Quarter	[2,3]
Mercury, Total Recoverable	ng/L	Grab	1/Quarter	[2,3,4]
Non-Conventional Pollutants				
Barium, Total Recoverable	µg/L	Grab	1/Month	[2]
Dissolved Oxygen	mg/L	Grab	1/Month	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Quarter	[2]
Mercury (methyl)	ng/L	Grab	1/Quarter	[2,4]
Temperature	°C	Grab[1]	1/Month	[2]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[2]
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	Grab	1/Month	[2]
Volatile Organic Compounds[5]	µg/L	Grab	1/Month	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] 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] 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] 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-7).

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

[5] All volatile organic compounds (VOC's) listed as U.S. EPA Priority Pollutants using analytical method 8260B.

2. If the groundwater treatment system has a scheduled or unscheduled shutdown lasting longer than 7 days, or which could result in noncompliance upon startup regardless of the downtime, the Discharger shall monitor the influent and effluent for the total petroleum hydrocarbons and VOC's listed in Table E-3 above upon startup of the treatment system as follows:

   a. Immediately upon startup;

   b. Daily for the first 2 days of operation; and

   c. Monthly or quarterly thereafter in accordance with Table E-3.

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 annual acute toxicity testing.

2. *Sample Types* – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

3. *Test Species* – Test species shall be fathead minnows (*Pimephales promelas*).

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 semi-annual three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites 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-004, as identified in this Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);

   b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and

   c. The green alga, *Selenastrum capricornutum* (growth test).

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

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

7. *Dilutions* – For routine and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and one control. 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[1] (%)					Control
	100	75	50	25	12.5	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

[1] Receiving water control 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 Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the

monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

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

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

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

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

   b. The statistical methods used to calculate endpoints;

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

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

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

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

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

3. **TRE Reporting.** Reports for TRE's shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

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

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

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

During the period of participation in the Delta Regional Monitoring Program, the Discharger shall continue to report any individually conducted receiving water monitoring data in the Electronic Self-Monitoring Reports (eSMR) according to the Monitoring and Reporting Program. In addition, 1) with each submitted eSMR, the Discharger's eSMR cover letter shall state that the Discharger is participating in the Delta Regional Monitoring Program in lieu of conducting the individual receiving water monitoring program required by the permit, and 2) with each annual report, the Discharger shall attach a copy of the letter originally submitted to the Central Valley Water Board describing

the monitoring location(s) and constituent combinations that will no longer be conducted individually.

A. Monitoring Location RSW-002

1. The Discharger shall monitor Fourteen Mile Slough at Monitoring Location RSW-002 as follows when discharging to surface water:

Table E-5. Receiving Water Monitoring Requirements – Monitoring Location RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Tide Stage	--	--	1/Quarter	--
Conventional Pollutants				
pH	standard units	Grab	1/Month	[1,2]
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab	1/Month	[1,2]
Electrical Conductivity @ 25°C	µmhos/ cm	Grab	1/Month	[1,2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Quarter	[1]
Temperature	°C(°F)	Grab	1/Month	[1,2]
Turbidity	NTU	Grab	1/Month	[1,2]

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

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

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions. Attention shall be given to the presence or absence of:

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

B. Monitoring Location RSW-003

1. The Discharger shall monitor Fourteen Mile Slough at Monitoring Location RSW-003 as follows when discharging to surface water:

Table E-6. Receiving Water Monitoring Requirements – Monitoring Location RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow Conditions	MGD	Observation	Quarterly for 1 Year[1]	--
Tide Stage	--	--	Quarterly for 1 Year[1]	--
Conventional Pollutants				
pH	standard units	Grab	Quarterly for 1 Year[1]	[2,3]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Priority Pollutants				
Arsenic, Dissolved	µg/L	Grab	Quarterly for 1 Year[1]	[2,4]
Non-Conventional Pollutants				
Barium, Dissolved	µg/L	Grab	Quarterly for 1 Year[1]	[2]
Dissolved Oxygen	mg/L	Grab	Quarterly for 1 Year[1]	[2,3]
Electrical Conductivity @ 25°C	µmhos/ cm	Grab	Quarterly for 1 Year[1]	[2,3]
Temperature	°C(°F)	Grab	Quarterly for 1 Year[1]	[2,3]
Turbidity	NTU	Grab	Quarterly for 1 Year[1]	[2,3]

[1] The Discharger shall monitor for these parameters quarterly for 1 year in 2019, concurrent with the Effluent and Receiving Water Characterization Study required in section IX.A of this Monitoring and Reporting Program.

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

IX. OTHER MONITORING REQUIREMENTS

A. Effluent and Receiving Water Characterization

If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the receiving water portion of this Characterization Monitoring is not required. However, the Report of Waste Discharge for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents[1] during the term of the permit. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. The Discharger may request that the Regional Monitoring Program perform sampling and laboratory analysis to address all or a portion of the monitoring under this Characterization Monitoring with the understanding that the Discharger will provide funding to the Regional Monitoring Program sufficient to reimburse all of the costs of this additional effort. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Monitoring. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point.

1. **Monitoring.** Samples shall be collected from the effluent (Monitoring Location EFF-001) once during the permit term and quarterly samples for 1 year shall be collected for the receiving water (Monitoring Location RSW-004) and analyzed for the constituents listed in Table E-7, below. Monitoring shall be conducted during 2019 and the results of such monitoring be submitted to the Central Valley Water Board with the quarterly SMR's. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

[1] Appendix A to 40 C.F.R. part 423.

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-7, below.

Table E-7. 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
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
2-Chlorophenol	µg/L	Grab	5
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5
2,4,6-Trichlorophenol	µg/L	Grab	10
2,6-Dinitrotoluene	µg/L	Grab	5
2-Nitrophenol	µg/L	Grab	10
2-Chloronaphthalene	µg/L	Grab	10
3,3'-Dichlorobenzidine	µg/L	Grab	5
3,4-Benzofluoranthene	µg/L	Grab	10
4-Chloro-3-methylphenol	µg/L	Grab	5
4,6-Dinitro-2-methylphenol	µg/L	Grab	10
4-Nitrophenol	µg/L	Grab	10
4-Bromophenyl phenyl ether	µg/L	Grab	10
4-Chlorophenyl phenyl ether	µg/L	Grab	5
Acenaphthene	µg/L	Grab	1
Acenaphthylene	µg/L	Grab	10
Anthracene	µg/L	Grab	10
Benzidine	µg/L	Grab	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	Grab	2
Benzo(g,h,i)perylene	µg/L	Grab	5
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Asbestos	MFL	Grab	--
Barium[3]	µg/L	Grab	--
Beryllium	µg/L	Grab	2
Cadmium	µg/L	Grab	0.5
Chromium (total)	µg/L	Grab	50
Chromium (VI)	µg/L	Grab	10
Copper	µg/L	Grab	10
Cyanide	µg/L	Grab	5
Fluoride	µg/L	Grab	--
Iron	µg/L	Grab	--
Lead	µg/L	Grab	5
Mercury[4]	µg/L	Grab	0.5
Manganese	µg/L	Grab	--
Molybdenum	µg/L	Grab	--
Nickel	µg/L	Grab	20
Selenium	µg/L	Grab	5
Silver	µg/L	Grab	10
Thallium	µg/L	Grab	1
Tributyltin	µg/L	Grab	--
Zinc	µg/L	Grab	20
4,4'-DDD	µg/L	Grab	0.05
4,4'-DDE	µg/L	Grab	0.05
4,4'-DDT	µg/L	Grab	0.01
alpha-Endosulfan	µg/L	Grab	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	Grab	0.01
Alachlor	µg/L	Grab	--
Aldrin	µg/L	Grab	0.005
beta-Endosulfan	µg/L	Grab	0.01
beta-Hexachlorocyclohexane	µg/L	Grab	0.005
Chlordane	µg/L	Grab	0.1
delta-Hexachlorocyclohexane	µg/L	Grab	0.005
Dieldrin	µg/L	Grab	0.01
Endosulfan sulfate	µg/L	Grab	0.01
Endrin	µg/L	Grab	0.01
Endrin Aldehyde	µg/L	Grab	0.01
Heptachlor	µg/L	Grab	0.01
Heptachlor Epoxide	µg/L	Grab	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	Grab	0.5
PCB-1016	µg/L	Grab	0.5
PCB-1221	µg/L	Grab	0.5
PCB-1232	µg/L	Grab	0.5
PCB-1242	µg/L	Grab	0.5
PCB-1248	µg/L	Grab	0.5
PCB-1254	µg/L	Grab	0.5
PCB-1260	µg/L	Grab	0.5
Toxaphene	µg/L	Grab	--
Atrazine	µg/L	Grab	--
Bentazon	µg/L	Grab	--
Carbofuran	µg/L	Grab	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
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[4]	MGD	Meter	--
Hardness (as $CaCO_3$)[3]	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	Grab	--
Mercury, Methyl[3]	ng/L	Grab	--
Nitrate (as N)	mg/L	Grab	--
Nitrite (as N)	mg/L	Grab	--
pH[4]	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	Grab	--
Specific conductance (EC)[3]	µmhos/cm	Grab	--
Sulfate	mg/L	Grab	--
Sulfide (as S)	mg/L	Grab	--
Sulfite (as SO_3)	mg/L	Grab	--
Temperature[4]	^oC	Grab	--
Total Dissolved Solids (TDS)[3]	mg/L	Grab	--

[1] The reporting levels required in this table for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.

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

[3] The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.

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. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS Web site will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit quarterly SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Quarterly SMR's are required even if there is no discharge. If no discharge occurs during a quarter, 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-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with quarterly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	Submit with quarterly SMR
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	1 August 1 February of following year

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
1/Year	Permit effective date	1 January through 31 December	1 February of following year
1/Permit term	1 January 2019	1 January through 31 December	Submit with annual SMR
Quarterly for 1 Year	1 January 2019	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

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

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

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

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

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

   d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values

around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

6. The Discharger shall submit SMR's in accordance with the following requirements:

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

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

   c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all its SMR's for which sample analyses were performed.

   d. The quarterly SMR's must clearly show when discharges at Discharge Point 001 occurred and the date and time that the discharge started and stopped.

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

   a. **Total Calendar Annual Mass Loading Mercury Effluent Limitations.** The Discharger shall calculate and report the total calendar annual mercury mass loading for the effluent in the December SMR. The total calendar year annual mass loading shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.

C. Discharge Monitoring Reports (DMR's)

Dischargers operating a "minor" facility, if so designated in the Fact Sheet, are excepted from submitting DMR's under these requirements. However, at any time during the term of this permit, the State Water Board or Central Valley Water Board may notify such a discharger to electronically submit DMR's, at which time this exception will no longer apply.

D. Other Reports

1. **Special Study Reports and Progress Reports**. As specified in the compliance time schedules required in the Special Provisions contained in section VI of the Order, special study and progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-9. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
CVCWA Coordinated Methylmercury Control Study, Final Report (Special Provision VI.C.2.b)	**20 October 2018**

Special Provision	Reporting Requirements
Compliance Schedule for Methylmercury, Progress Report (Special Provision VI.C.3.a)	**30 January**, annually (beginning January 2017)
Salinity Evaluation and Minimization Plan, Summary Report (Special Provision VI.C.3.a)	**Within 180 days** of permit expiration date (with Report of Waste Discharge)

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, and TRE/TIE required by Special Provisions – VI.C. The Discharger shall report the progress in satisfaction of compliance schedule dates specified in Special Provisions – VI.C.7. The Discharger shall submit reports with the first quarterly SMR scheduled to be submitted on or immediately following the report due date.

3. Within 60 days of permit adoption, the Discharger shall submit a report outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for the constituents listed in tables E-2, E-3, E-5, and E-6. In addition, no less than 6 months prior to conducting the effluent and receiving water characterization monitoring required in Section IX. D, the Discharger shall submit a report outlining RL's, MDL's, and analytical methods for the constituents listed in Table E-7. 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-7 provides required maximum reporting levels in accordance with the SIP.

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

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

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

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

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

   e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing.

The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

ATTACHMENT F – FACT SHEET

Contents

Tables

ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5B391080001
CIWQS Facility Place ID	237054
Discharger	Lincoln Center Environmental Remediation Trust
Name of Facility	Groundwater Treatment System
Facility Address	6471 Pacific Avenue
	Stockton, CA 95207
	San Joaquin County
Facility Contact, Title and Phone	Joe Niland, Trustee, (916) 637-8325
Authorized Person to Sign and Submit Reports	Joe Niland, Trustee, (916) 637-8325
Mailing Address	3043 Gold Canal Drive, Suite 201, Rancho Cordova, CA 95670
Billing Address	Same as mailing address
Type of Facility	Groundwater extraction and treatment system
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not applicable
Recycling Requirements	Not applicable
Facility Permitted Flow	0.25 million gallons per day (MGD)
Facility Design Flow	0.25 MGD
Watershed	Sacramento-San Joaquin Delta
Receiving Water	Fourteen Mile Slough
Receiving Water Type	Sacramento-San Joaquin Delta

A. The Lincoln Center Environmental Remediation Trust (hereinafter Discharger) is the owner and Geosyntec Consultants is the operator of the Lincoln Center Environmental Remediation Trust Groundwater Treatment System (hereinafter Facility), a groundwater extraction and treatment system.

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 Fourteen Mile Slough, a water of the United States, within the Sacramento-San Joaquin Delta. The Discharger was previously regulated by Order R5-2011-0055-01 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084255 adopted on 4 August 2011 and expired on 1 August 2016. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

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

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its WDR's and NPDES permit on 23 September 2015. The application was deemed complete on 6 November 2015.

II. FACILITY DESCRIPTION

The Lincoln Center Environmental Remediation Trust was formed in 2001 to manage environmental remediation activities at Lincoln Center in Stockton, California resulting from historical releases from dry cleaning facilities and a sewer leak at the site. Prior to formation of the trust, the named discharger was The Settling Dry Cleaning Defendants, as defined by Consent Decree No. CIV-S-91 DFL (GGH) filed 18 January 1996 with the U.S. District Court, Eastern District of California.

A. Description of Wastewater and Biosolids Treatment and Controls

The Facility is a groundwater extraction and treatment system designed to remove volatile organic compounds (VOC's) from groundwater. The treatment system also treats residual fluids generated during the continuing investigation, remediation, and monitoring activities at the site. Constituents of concern in the influent groundwater include benzene, cis-1,2-dichloroethylene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, total petroleum hydrocarbons (as gasoline), trichloroethylene, and xylene.

The groundwater treatment system (GWTS) consists of an influent equalization tank and three liquid phase granulated activated carbon (LGAC) adsorption canisters, two ion-exchange vessels (to use on an as-needed basis), and an effluent equalization tank. The activated carbon is regenerated or disposed of off-site.

The treatment system is designed for a flow of 0.43 MGD of extracted groundwater and the Discharger was permitted to discharge an average daily discharge flow of 0.43 MGD. However, based on discharge flow data from January 2012 – September 2014 the discharge flow was generally less than 0.25 MGD. Furthermore, the Discharger utilized a site-specific groundwater model to evaluate plume capture of the GWTS and determined that plume capture could be maintained at pumping rates between 0.08 MGD and 0.25 MGD. Therefore, the permitted average daily flow was reduced to 0.25 MGD by Order R5-2015-0076 adopted by the Central Valley Water Board on 5 June 2015.

The GWTS was originally designed to remove VOC's, petroleum products, and lead from groundwater. The GWTS originally included a low profile air stripper prior to the LGAC for VOC removal. In addition, a vapor phase granular activated carbon vessel was used to absorb the VOC's prior to discharge to the atmosphere. Since initiation of operation of the groundwater cleanup in 1999, the constituents of concern (i.e., primarily tetrachloroethylene and petroleum hydrocarbons) have been reduced substantially. The significant reduction

meant that the air stripper was no longer needed. The Discharger conducted a test of the GWTS in February 2015 to evaluate the treatment efficiency using only the LGAC. The test indicated LGAC alone is capable of removing VOC's to the levels required in this Order.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 21, T2N, R6E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated wastewater is discharged to:
   a. Discharge Point 001 to a San Joaquin County storm drain located at Lincoln Center. The storm drain flows approximately 2 miles and terminates at the San Joaquin County Storm Pump Station #1 (SJCPS #1), located at the head of Fourteen Mile Slough at latitude 38° 0' 0.89" N and longitude 121° 19 54.1" W. Fourteen Mile Slough is a water of the United States and a tributary to the Stockton Deep Water Ship Channel portion of the San Joaquin River within the Sacramento-San Joaquin Delta. This Order regulates the discharge at Discharge Point 001.
   b. An in-situ chemical oxidation (ISCO) dosing and groundwater reinjection system. The reinjection system is regulated under General Order R5-2015-0012, General Waste Discharge Requirements for In-Situ Groundwater Remediation and Discharge of Treated Groundwater to Land, as Order R5-2015-0012-013.

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

Effluent limitations contained in Order R5-2011-0055-01 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2011-0055-01 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		Monitoring Data (January 2012 – March 2015)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
pH	standard units	--	6.5 – 8.5	--	8.5
Arsenic, Total Recoverable	µg/L	--	23	--	20
Chromium VI, Total Recoverable	µg/L	7.8	16	9.7	9.7
1,2-Dichloroethane	µg/L	0.38	--	<0.077	--
Lead, Total Recoverable	µg/L	11	22	J 1.0	J 1.0
Mercury, Total Recoverable	µg/L	0.050	0.10	0.00082	0.00082
	lbs/day[1]	0.00018	0.00036	NR	NR
	lbs/year	0.0014[2]	--	NR	--
Ammonia Nitrogen, Total (as N)	mg/L	0.72	2.1	J 0.5	J 0.5
	lbs/day[1]	2.6	7.5	NR	NR
Barium, Total Recoverable	µg/L	--	415	--	320
Electrical Conductivity @ 25°C	µmhos/cm	1,500	--	953	--

Parameter	Units	Effluent Limitation		Monitoring Data (January 2012 – March 2015)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	--	50	--	<4
Volatile Organic Compounds	µg/L	--	0.5	--	J 0.32[3]
Acute Toxicity	% Survival	--	70[4]/90[5]	--	100
Chronic Toxicity	TUc	--	[6]	--	1
Average Daily Flow	MGD	--	0.25	--	0.469

NR = Not Reported

1 Based on an average daily discharge flow of 0.43 MGD.

2 The total annual mass discharge of total mercury shall not exceed 0.0014 lbs.

3 Includes all VOC's identified as constituents of concern in influent groundwater, including: benzene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes.

4 Minimum for any one bioassay.

5 Median for any three consecutive bioassays.

6 There shall be no chronic toxicity in the effluent discharge.

D. Compliance Summary – Not Applicable

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters.

B. California Environmental Quality Act (CEQA)

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

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

1. **Water Quality Control Plan.** 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 Water Quality Control Plan, Fourth Edition (Revised October 2011), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. 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. Beneficial uses applicable to the Sacramento-San Joaquin Delta, which includes Fourteen Mile Slough, are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Fourteen Mile Slough within the Sacramento-San Joaquin Delta	Existing: Municipal and domestic water supply (MUN); agricultural supply including irrigation and stock watering (AGR); industrial process supply (PRO); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation(REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); and navigation (NAV).

b. **Bay-Delta Plan**. The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in May 1995 by the State Water Board superseding the 1991 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

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

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.

3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal

policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("*Statement of Policy with Respect to Maintaining High Quality of Waters in California*"). Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels 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 does not regulate storm water discharges from environmental cleanup service (SIC Code 4959) facilities. This Order does not contain storm water requirements.

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 2012 U.S. EPA gave final approval to California's 2010-2012 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLS's), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources* (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [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 listing for the eastern portion of the Sacramento-San Joaquin Delta includes: chlorpyrifos, DDT, diazinon, group A pesticides, invasive species, mercury, and unknown toxicity. The listing for the Delta Waterways Stockton Ship Channel includes: chlorpyrifos, DDT, diazinon, dioxin, furan

compounds, group A pesticides, invasive species, mercury, organic enrichment/low dissolved oxygen, polychlorinated biphenyls (PCB's), pathogens, and unknown toxicity.

2. **Total Maximum Daily Loads (TMDL's).** U.S. EPA requires the Central Valley Water Board to develop TMDL's for each 303(d) listed pollutant and water body combination. Table F-4, below, identifies the 303(d) listings and the status of each TMDL.

Table F-4. 303 (d) List for the Sacramento-San Joaquin Delta (Eastern Portion) and the Stockton Ship Channel

Waterway	Pollutant	Potential Sources	TMDL Completion[1]
Sacramento-San Joaquin Delta (Eastern Portion)	Chlorpyrifos	Source Unknown	2007
	DDT	Source Unknown	2011
	Diazinon	Source Unknown	2007
	Group A Pesticides	Source Unknown	2011
	Invasive Species	Source Unknown	(2019)
	Mercury	Source Unknown	2009
	Unknown Toxicity	Source Unknown	(2019)
Stockton Ship Channel	Chlorpyrifos	Source Unknown	2007
	DDT	Source Unknown	2011
	Diazinon	Source Unknown	2007
	Dioxin	Source Unknown	(2019)
	Furan Compounds	Source Unknown	(2019)
	Group A Pesticides	Source Unknown	2011
	Invasive Species	Source Unknown	(2019)
	Mercury	Source Unknown	2009
	Organic Enrichment/ Low Dissolved Oxygen	Source Unknown	2007
	PCB's	Source Unknown	(2019)
	Pathogens	Source Unknown	2008
	Unknown Toxicity	Source Unknown	(2019)

[1] Dates in parenthesis are proposed TMDL completion dates.

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

E. Other Plans, Policies and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL's to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00 contains an implementation policy, "*Policy for Application of Water Quality Objectives*", that specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) U.S. EPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "Policy for Application of Water Quality Objectives")(40 C.F.R. § 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00). The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCL's)*" in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCL's. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at C.F.R. section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property

damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 C.F.R. section 125.3.

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

2. Applicable Technology-Based Effluent Limitations

a. **VOC's.** Liquid Granular Activated Carbon (LGAC) treatment systems are commonly used to remove VOC's from extracted groundwater at cleanup sites. The Facility utilizes LGAC and is capable of dependably removing the groundwater contaminants to concentrations that are non-detectable by current analytical technology. Order R5-2011-0055-01 included technology-based MDEL's for VOC constituents of concern, including benzene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, tetrachloroethylene, toluene, trichloroethylene, and xylene, based on the ability of groundwater treatment technology to remove the groundwater contaminants to concentrations that are non-detectable by current analytical technology.

State Water Board Resolution No. 68-16 requires implementation of best practicable treatment and control (BPTC) to ensure that the highest water quality is maintained consistent with the maximum benefit to the people of the State. BPTC for groundwater cleanup of VOC's provides that the pollutants should be discharged at concentrations no higher than quantifiable levels for each pollutant. For the purposes of this Order, BPTC for VOC's requires meeting effluent limitations based on the Minimum Levels (ML's) defined in Appendix 4, Table 2a of the SIP. Several dischargers, including the Discharger, in the Central Valley Region have implemented BPTC groundwater treatment systems and have been able to consistently treat VOC's in the wastewater to concentrations below the ML's in the SIP.

According to the SIP, if no ML value is below the effluent limitation, the applicable ML value shall be the lowest ML value listed in Appendix 4 of the SIP. VOC concentrations below the ML's are generally considered unquantifiable. Therefore, application of technology-based effluent limitations for VOC's at groundwater cleanup sites requires effluent to meet ML's.

With respect to the specific discharges permitted herein, the following have been considered as required in 40 C.F.R. section 125.3 for establishing effluent limitations based on BPJ:

i. **Appropriate Technology for Category or Class of Discharges.** LGAC is commonly used to remove VOC's from extracted groundwater at cleanup sites. Properly operated and maintained systems perform reliably and ensure essentially complete removal of VOC's. The Discharger employs LGAC.

ii. **Unique Factors Relating to the Discharger.** The Discharger has not identified any unique factors that would justify discharges equaling or exceeding quantifiable concentrations of VOC's.

iii. **Age of Equipment.** The Discharger has not identified any concerns related to the ability to treat the contaminated groundwater due to the age of the equipment.

iv. **Non-water Quality Environmental Impacts.** The LGAC should reliably remove VOC's to concentrations of less than 0.5 µg/L and should not create additional non-water quality impacts (e.g., air emissions), or undue financial costs for the Discharger.

LGAC is an appropriate technology for VOC removal from extracted groundwater. The above supports the conclusion that the Discharger can meet a MDEL of 0.5 µg/L. Therefore, an MDEL for VOC's of 0.5 µg/L is established in this Order to reflect BPTC and BPJ.

b. **Total Petroleum Hydrocarbons (Gasoline Range).** The SIP does not specify an ML for total petroleum hydrocarbons (gasoline range). Therefore, this Order retains an MDEL of 50 µg/L, from Order R5-2011-0055-01, which reflects the commonly achieved reporting level for this constituent.

c. **Flow.** A technology-based effluent limitation for flow is retained in this Order to monitor the performance of the groundwater treatment system from the standpoint of volumes being treated. The average daily flow rate in Order No. R5-2005-0144-01 was established at 0.43 MGD based on the design flow and was retained in Order R5-2011-0076 when the permit was renewed in August 2011. The permitted average daily flow rate was subsequently reduced to 0.25 MGD by Order R5-2015-0076 adopted by the Central Valley Water Board on 5 June 2015. 40 C.F.R. section 122.45(2)(i) requires that, "…*calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) shall be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility*." Based on discharge flow data from January 2012 through March 2015, the flow was generally less than 0.25 MGD. Furthermore, the Discharger utilized a site-specific groundwater model to evaluate plume capture of the GWTS and determined that plume capture could be maintained at pumping rates between 0.08 MGD and 0.25 MGD.

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table F-5. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	0.25[1]	--	--
Non-Priority Pollutants					
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	--	50	--	--
Volatile Organic Compounds[2]	µg/L	--	0.5	--	--

[1] Average daily discharge flow rate.

[2] This effluent limitation applies to VOC's identified as constituents of concern in influent groundwater, including: benzene, 1,1-dichloroethylene, 1,2-dichloroethane, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes.

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

1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

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

such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

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

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 C.F.R. sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 C.F.R. section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. **Receiving Water and Beneficial Uses.** The Facility discharges to a San Joaquin County storm drain located at Lincoln Center, which flows approximately 2 miles and terminates at a pump station operated and maintained by San Joaquin County at the head of Fourteen Mile Slough. Fourteen Mile Slough is tidally influenced such that the upper reaches can be inundated during high tide and dry during low tide. Fourteen Mile Slough is within the eastern portion of the Sacramento-San Joaquin Delta and a tributary to the San Joaquin River within the Stockton Ship Channel. The distance from the head of Fourteen Mile Slough to the confluence with the San Joaquin River is approximately 7 miles. Refer to section III.C.1, above, for a complete description of the receiving water 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 routine monitoring effluent data from January 2012 through March 2015, including results

from two priority pollutant sampling events from October 2014 and January 2015, using data submitted in SMR's.

The Facility discharges to a storm drain that terminates at the head of Fourteen Mile Slough. Therefore, there is no physical upstream receiving water monitoring location and it is infeasible to collect upstream receiving water samples. Pursuant to the existing permit, the Discharger monitored Fourteen Mile Slough at Monitoring Location RSW-002 which is located 200 feet downstream from the outfall of the storm drain. However, samples taken at Monitoring Location RSW-002 are expected to be primarily comprised of effluent, except under wet weather conditions, and are not representative of background conditions. Therefore, monitoring data collected at Monitoring Location RSW-002 was not used for the RPA. The Discharger's dilution/mixing zone study for arsenic and barium indicated that the San Joaquin River at Juggler's Island (i.e., the confluence of Fourteen Mile Slough and the San Joaquin River), where the tidally influenced waters originate for Fourteen Mile Slough, is a more representative location for ambient background receiving water sampling. Receiving water data collected from Monitoring Location RSW-004 was based on data from October 2010 through March 2015, including two priority pollutant sampling events in October 2014 and January 2015. Monitoring Location RSW-004 is located in the San Joaquin River at Juggler's Island, approximately 6.4 miles downstream from the storm drain system outfall.

c. **Assimilative Capacity/Mixing Zone**

The CWA directs the states to adopt water quality standards to protect the quality of its waters. U.S. EPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 C.F.R. § 122.44 and 122.45). The U.S. EPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the U.S. EPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001)(TSD).

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

For Priority Pollutants, the SIP supersedes the Basin Plan mixing zone provisions. Section 1.4.2 of the SIP states, in part, "…*with the exception of effluent limitations derived from TMDL's, in establishing and determining compliance with effluent*

limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers…The applicable priority pollutant criteria and objectives are to be met through a water body except within any mixing zone granted by the Regional Board. ***The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis.*** *The Regional Board may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board*." [emphasis added]

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

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

A: A mixing zone shall not:

1. compromise the integrity of the entire water body;

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

3. restrict the passage of aquatic life;

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

5. produce undesirable or nuisance aquatic life;

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

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

8. cause objectionable bottom deposits;

9. cause nuisance;

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

11. be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."

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

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

Fourteen Mile Slough is a dead end, tidally influenced slough within the eastern portion of the Sacramento-San Joaquin Delta. The eastern portion of the

Sacramento-San Joaquin Delta is listed as impaired for numerous pollutants, including unknown toxicity. The storm drain outfall, which conveys the treated groundwater effluent, discharges to Fourteen Mile Slough via the SJCPS #1. During a site visit in November 2004, Central Valley Water Board staff observed some pooled water but no discernable receiving water flow immediately downgradient in the vicinity of this outfall location. Further downgradient, staff observed increasing volumes of water in Fourteen Mile Slough, likely under tidal influence. During a site visit on 30 August 2010 performed by PG Environmental on behalf of the Central Valley Water Board, the pump station was not discharging to Fourteen Mile Slough; however, some flow was noted in Fourteen Mile Slough downstream of the pump station. Considering the hydraulic characteristics of the receiving water, results of effluent and ambient receiving water monitoring, and the location of the discharge outfall to the beginning of Fourteen Mile Slough, the Central Valley Water Board has evaluated the need for WQBEL's for pollutants without benefit of dilution in this Order, with the exception of arsenic and barium.

The Basin Plan contains specific water quality objectives for arsenic and barium for the Sacramento-San Joaquin Delta. On 25 September 2009, the Discharger submitted a *Work Plan for Dilution/Mixing Zone Study for Arsenic and Barium, Lincoln Center, Stockton, California* (Work Plan), detailing how the Discharger planned to conduct a dilution/mixing zone study for arsenic and barium in Fourteen Mile Slough. The study was performed in accordance with the SIP, U.S. EPA's Water Quality Standards Handbook, and the TSD. The study consisted of a field survey of the receiving water (to identify the intakes or outfalls in the proposed mixing zone), and an empirical study of arsenic and barium concentrations along Fourteen Mile Slough (to characterize the extent of dilution). Tidally influenced receiving waters, such as Fourteen Mile Slough, exhibit complex mixing behavior and unsteady hydraulics. Fourteen Mile Slough generally experiences two high tides and two low tides during each tidal cycle, and each tidal cycle lasts approximately 24.8 hours. Periods of "spring" and "neap" tides occur in conjunction with the lunar cycle and refer to the tidal range or amplitude. During spring tides, the high tides are higher and the low tides are lower, while during neap tides, the range is more confined.

The dilution/mixing of constituents in Fourteen Mile Slough is complex because flow direction along Fourteen Mile Slough reverses with tides and flow is unsteady. Therefore, the study was designed to provide empirical dilution data and the critical design conditions monitored were based on the tides. There is no upstream flow in Fourteen Mile Slough during non-storm events, so only tidal flushing is available for dilution. To meet the critical design conditions when dilution and mixing are at a minimum, the study was conducted while a neap tide cycle was occurring and was conducted during a period of no rainfall, so there were no storm water flows to dilute the discharge. The reason for conducting the study during a neap tide cycle is that over the course of an entire neap tide cycle, it is presumed that the tides provide less dilution (due to lower tidal amplitude) than all other tidal cycles. During this neap tide cycle, a slack water condition occurs at low tide. The slack water condition produces little or no horizontal motion of receiving waters, which is considered the critical design condition or minimum occurrence of dilution and mixing.

On 28 and 29 September 2009, during the neap tide cycle, the dilution/mixing zone study was performed. The study consisted of multiple components, including:

- Field survey of Fourteen Mile Slough from the outfall of SJCPS #1 to the Village Marina;

- Composite sampling at the outfall of SJCPS #1, Footbridge, Riverbank Park, Village Marina, and Juggler's Island stations;
- Grab sampling of the system effluent and I-5 overpass station;
- Water levels recorded by pressure transducer at all monitoring locations except Juggler's Island station;
- Depth cross-section measurements at the I-5 overpass station;
- Velocity estimates at the I-5 overpass station;
- Continuous conductivity measurements at the I-5 overpass station;
- Conductivity transects at the Footbridge and I-5 overpass stations;
- Field screening of grab samples for conductivity, pH, and temperature.

Results of these study components are further detailed in the *Revised Fourteen-Mile Slough Dilution/Mixing Zone Study, Lincoln Center, Stockton, California* (prepared by LFR, Inc, 17 November 2009). During the field survey of Fourteen Mile Slough it was observed that the Alexandria Place pump station was discharging intermittently during the study. Discharges lasted approximately 5 minutes and occurred every 90 minutes. The estimated total daily flow from this discharge is 99,000 gallons per day. Analysis of a grab sample indicated that arsenic and barium concentrations were 16 µg/L and 150 µg/L, respectively, from this discharge. These analytical results are greater than analytical results from samples collected upstream of the discharge at the Footbridge. Therefore, the discharge from the Alexandria Place pump station may, if at all, slightly reduce the calculated dilution by increasing the concentrations of arsenic and barium present in Fourteen Mile Slough.

Water levels recorded at the Footbridge, I-5 overpass, Riverbank Park, and Village Marina indicated all stations are tidally influenced and tidally ranged within 3 feet. The outfall of SJCPS #1 was not tidally influenced during the study period. Conductivity measurements transecting the Footbridge and I-5 overpass stations were collected to evaluate whether conditions varied appreciably over the width of Fourteen Mile Slough. The variability was approximately 0.5 percent which is less than 8 percent that is the cut off for considering the data representative of the entire width of the water body.

The following table presents the summary of analytical results for composite sampling as well as treatment system samples. Composite values for the I-5 overpass station were created by averaging the grab sample results. The effective dilution factor was calculated from the analytical data using the following equation:

$$DF = (Ce - Ca) / (Cp - Ca)$$

Where:

DF = dilution factor
Ce = effluent concentration
Ca = background concentration at Jugglers Island
Cp = concentration at given location

Table F-6. Analytical Results and Effective Dilution Factors

Sample Location	Arsenic (µg/L)	Barium (µg/L)	Dilution Factor for Arsenic	Dilution Factor for Barium
System Discharge[1]	11	290	--	--
Footbridge	8.6	130	1.4	2.8
I-5 Overpass	5.0[2]	73[2]	3.0	8.3
Riverbank Park	5.8	59	2.4	15.4
Village Marina	3.7	51	5.3	30.9
Juggler's Island[3]	2.0	43	--	--

1 Effluent concentration (Ce).
2 Composite values for the I-5 station were created by averaging the grab sample results.
3 Background concentration (Ca).

Once the dilution factors were determined, effluent concentration allowance (ECA) values were calculated following Step 1 of the process for developing WQBEL's in accordance with the steady state model described in Section 1.4 of the SIP and Chapter 5 of the TSD. For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$ECA = C + D(C - B)$ where $C>B$, and
$ECA = C$ where $C \leq B$

Where:

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

The background concentrations of arsenic and barium were less than the applicable Basin Plan objectives; therefore, the effective dilution factor (DF) for the dilution credit (D) was substituted in the equation for the ECA that include dilution. The resulting ECA's based on dilution credits for arsenic and barium are as follows:

Table F-7. ECA Based on Dilution Credits

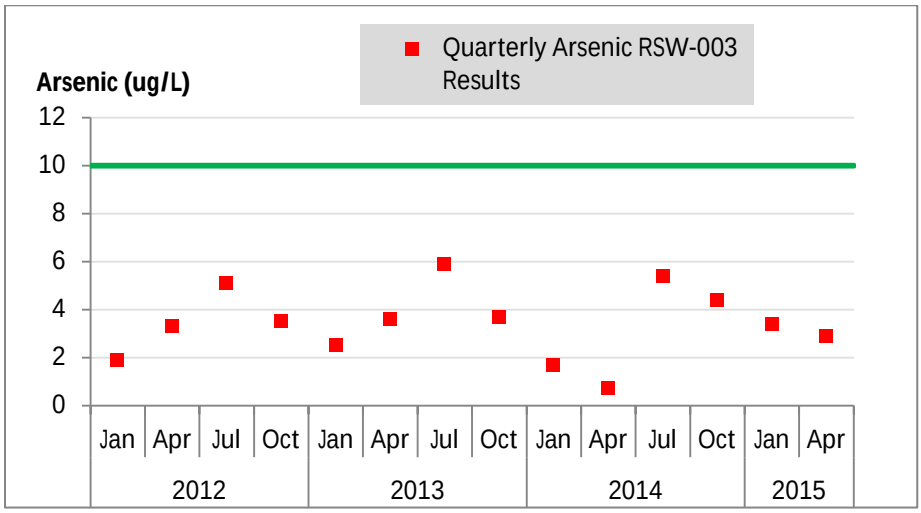
Sample Location	Dilution Factor for Arsenic	ECA for Arsenic (µg/L)	Dilution Factor for Barium	ECA for Barium (µg/L)
Footbridge	1.4	21	2.8	260
I-5	3.0	34	8.3	570
Riverbank Park	2.4	29	15.4	980
Marina	5.3	52.4	30.9	1,900

Using the dilution factor as the "D" in the SIP's ECA equation is conservative, because the maximum background constituent concentrations are essentially "double counted". The maximum ambient background concentration is a factor in the calculation of the dilution factor and again accounted for in the SIP's ECA equation.

The Discharger's dilution/mixing zone study indicates that the San Joaquin River at Juggler's Island (i.e., the confluence of Fourteen Mile Slough and the San Joaquin River) where the tidally influenced waters originate for Fourteen Mile Slough is a more representative location for ambient background receiving water sampling.

Arsenic. Based on background monitoring at Juggler's Island between January 2012 and January 2015, the maximum background concentration of arsenic was 3.8 µg/L and the mean background concentration was 2.7 µg/L. The maximum background concentration of arsenic at Juggler's Island is below the Basin Plan water quality objective for arsenic of 10 µg/L indicating that assimilative capacity for arsenic is available in the receiving water. Based on the fact that assimilative capacity exists and the results of the dilution/mixing zone study, the Central Valley Water Board finds that a dilution factor of 3.0 is appropriate for arsenic. This dilution factor corresponds to a mixing zone extending approximately 0.9 miles and ending at the I-5 overpass.

As shown in the table below, receiving water arsenic concentrations at the edge of the mixing zone (Monitoring Location RSW-003) for the past 3 years are below the Basin Plan objective of 10 µg/L, which confirms the mixing zone study findings for arsenic.

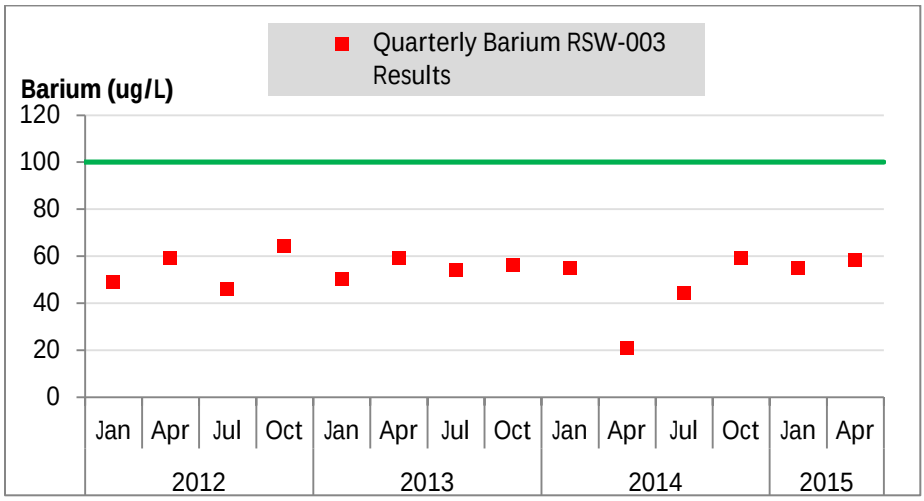


Following the procedures established by the SIP for calculating WQBEL's and applying a dilution credit of 3.0 to the Basin Plan water quality objective, the resulting AMEL for arsenic is 32 µg/L and the MDEL is 41 µg/L. However, effluent limitations may only be as high as is justified under State and federal antidegradation policies. The 99.9th percentile of the effluent data for arsenic between January 2012 and January 2015 was 18 µg/L (assuming a normal distribution). The MEC observed during the same period was 20 µg/L. The Facility performance is consistent from last permit term; therefore, this Order carries forward the performance-based effluent limit of 23 µg/L from previous Order R5-2011-0055-01. However, in compliance with federal regulations and the SIP this Order includes an AMEL and MDEL for arsenic.

Barium. Based on background monitoring at Juggler's Island between January 2012 and January 2015, the maximum background concentration of barium was 43 µg/L and the mean background concentration was 38 µg/L. The background concentrations of barium at Juggler's Island is below the Basin Plan water quality objective for barium of 100 µg/L as a maximum concentration, and indicates that assimilative capacity for barium is available in the receiving water. Based on the fact that assimilative capacity exists and the results of the dilution/mixing zone study, the Central Valley Water Board finds that a dilution factor

of 8.3 is appropriate for barium. This dilution factor corresponds to a mixing zone extending approximately 0.9 miles and ending at the I-5 overpass.

As shown in the table below, receiving water barium concentrations at the edge of the mixing zone (Monitoring Location RSW-003) for the past 3 years are below the Basin Plan objective of 100 µg/L, which confirms the mixing zone study findings for barium.



Following the procedures established by the SIP for calculating WQBEL's and applying a dilution credit of 8.3 to the Basin Plan water quality objective, the resulting AMEL for barium is 613 µg/L and the MDEL is 740 µg/L. However, effluent limitations may only be as high as is justified under State and federal antidegradation policies. The 99.9th percentile of the effluent data for barium between January 2012 and January 2015 was 382 µg/L (assuming a normal distribution). The MEC observed during the same period was 320 µg/L. The Facility performance is consistent from last permit term; therefore, this Order carries forward the performance-based effluent limit of 415 µg/L from previous Order R5-2011-0055-01. However, in compliance with federal regulations this Order includes an AMEL and MDEL for barium.

The discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws, because all aquatic life criteria must be met at the end-of-pipe (i.e., no dilution allowed). The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable color, odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because this Order requires effluent limitations and discharge prohibitions, which prevent these from occurring.

As suggested by the SIP, in determining the extent of or whether to allow a mixing zone and dilution credit, the Central Valley Water Board has considered the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the mixing zone and dilution credit is adequately protective of the beneficial uses of the receiving water. Furthermore, no drinking water intakes are located within the mixing zone.

The mixing zone therefore complies with the SIP. The mixing zone also complies with the Basin Plan, which requires that the mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Regional Water Board has considered the procedures and guidelines in the EPA's Water Quality Standards Handbook, 2d Edition (updated July 2007), Section 5.1, and Section 2.2.2 and 4.3.3. of the TSD. The SIP incorporates the same guidelines.

The study concluded that the edge of the mixing zone in Fourteen Mile Slough for arsenic and barium is located at the I-5 overpass. The Central Valley Water Board finds that the mixing zones and dilution credits supported by the study continue to be applicable to the discharge. This Order allows a mixing zone for arsenic and barium approximately 0.9 miles downstream of the discharge at the I-5 overpass (Monitoring Location RSW-003) and includes effluent limitations allowing credit for dilution for arsenic and barium.

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 *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP[1] and the CTR[2]. The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones[3]. Where design flows for aquatic life criteria include the lowest 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

[1] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.
[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. § 131.38(c)(4)).
[3] 40 C.F.R. §131.3(c)(4)(ii)
[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)

downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

Summary findings

The ambient hardness for Fourteen Mile Slough is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 140 mg/L to 810 mg/L based on collected ambient data from January 2012 through March 2015. Given the high variability in ambient hardness values, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum). Because of this variability, staff has determined that based on the ambient hardness concentrations measured in the receiving water, the Central Valley Water Board has discretion to select ambient hardness values within the range of 140 mg/L to 810 mg/L; however, the CTR states that a maximum hardness of 400 mg/L shall be used for waters with a hardness value over 400 mg/L. Staff recommends that the Board use the ambient hardness values shown in Table F-8 for the following reasons.

1. Using the ambient receiving water hardness values shown in Table F-8 will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
2. 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-8 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.
3. Using an ambient hardness that is higher than the minimum of 140 mg/L will result in limits that may allow increased metals to be discharged to Fourteen Mile Slough, but such discharge is allowed under the antidegradation policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in Section IV.D.4 of the Fact Sheet). The Antidegradation policy requires the Discharger to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.
4. Using the ambient hardness values shown in Table F-8 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-8. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L)[2,3]	CTR Criteria (µg/L, total recoverable)[1]	
		acute	chronic
Copper	210	28	18
Chromium III	210	3,200	380
Cadmium	210 (acute) 210 (chronic)	10	4.4
Lead	210	210	8.2
Nickel	210	880	98
Silver	210	15	--
Zinc	210	220	220

[1] Metal criteria rounded to two significant figures in accordance with the CTR (40 C.F.R. §131.38(b)(2)).
[2] The ambient hardness values in this table represent actual observed receiving water hardness measurements from the dataset shown in Figure F-1.
[3] The CTR's hardness dependent metals criteria equations vary differently depending on the metal, which results in differences in the range of ambient hardness values that may be used to develop effluent limitations that are protective of beneficial uses and comply with CTR criteria for all ambient flow conditions.

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 $CaCO_3$) [1]

WER = water-effect ratio

m, b = metal- and criterion-specific constants

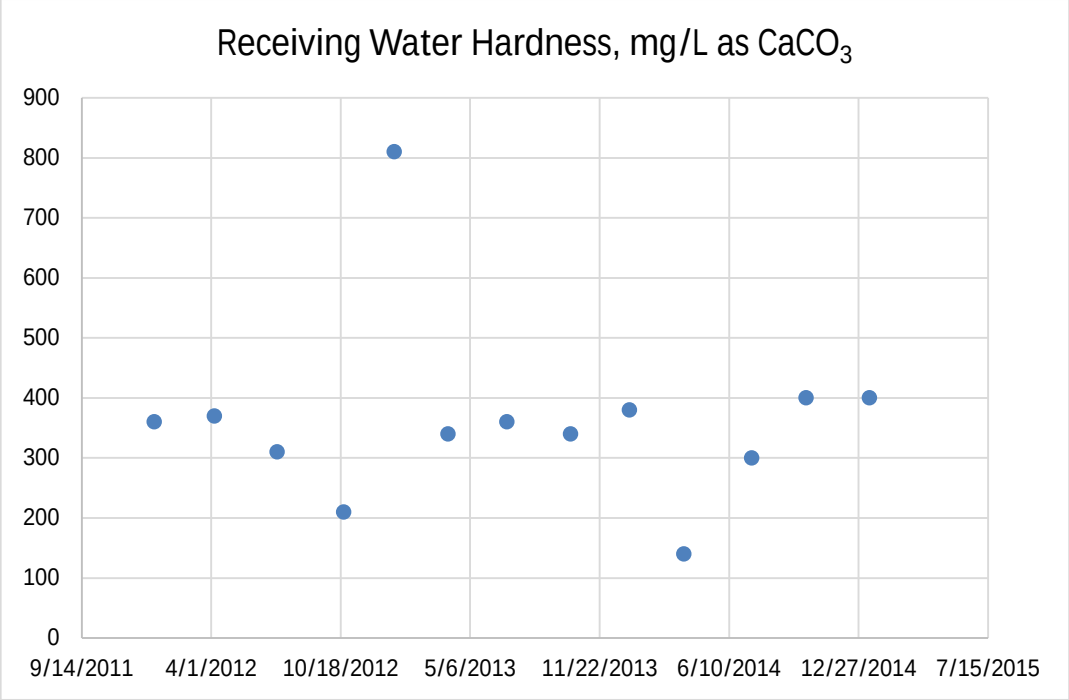
[1] For this discussion, all hardness values are expressed in mg/L as $CaCO_3$.

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.[1] 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).

Ambient Conditions

The ambient receiving water hardness at Monitoring Location RSW-002 varied from 140 mg/L to 810 mg/L from 14 samples collected between January 2012 and March 2015.

Figure F-1. Observed Downstream Receiving Water Hardness Concentrations, January 2012 - March 2015



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.

Approach to derivation of criteria

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

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

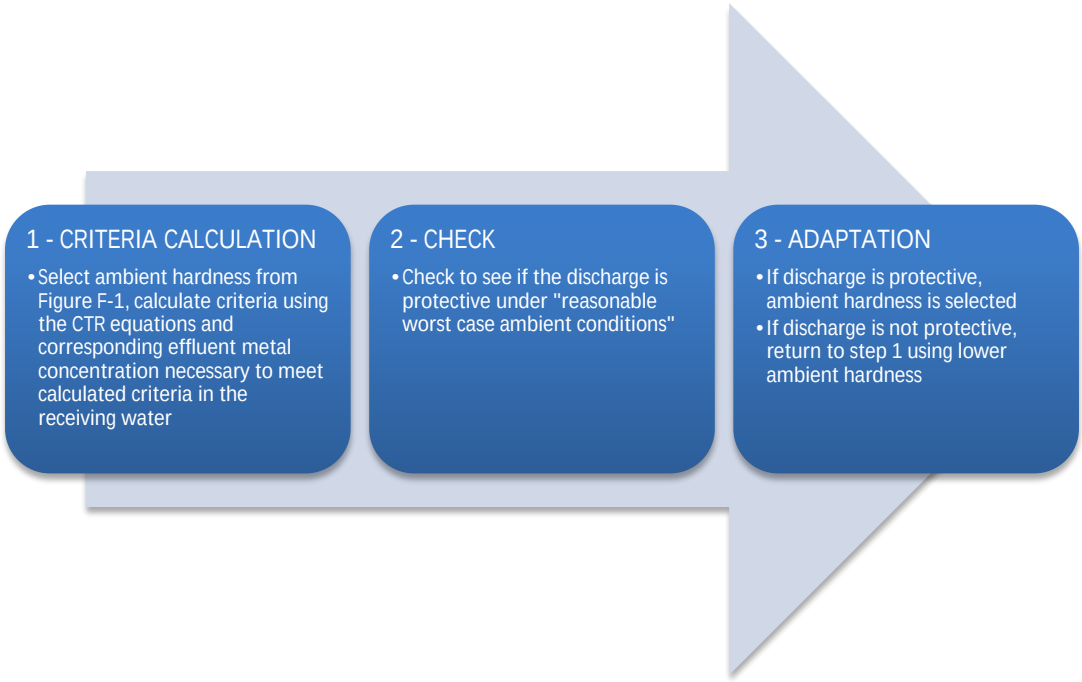
Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, staff have conducted an analysis considering varying ambient hardness and flow conditions. 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." Fourteen Mile Slough is a dead end, tidally influenced slough. There is no upstream flow in Fourteen Mile Slough during non-storm events, so only tidal flushing is available for dilution and there is no flow monitoring data. As an estimate of the CTR design discharge conditions (1Q10 and 7Q10) an effluent fraction of 1.0 and 0.9 have been selected to represent reasonable worst case low 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. In this situation, an effluent fraction of 0.05 was selected to represent the high flow condition.
- "Low receiving water hardness." The minimum receiving water hardness condition of 140 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 does not regularly occur 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 a hardness of 400 mg/L and up to the maximum observed ambient hardness of 810 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.[1] This should not be confused with an effluent limit. Rather, it is the Effluent Concentration Allowance (ECA), which is synonymous with the wasteload allocation defined by U.S. EPA as "*a definition of effluent water quality that is necessary to meet the water quality standards in the receiving water*."[2] If effluent limits are found to be needed, the limits are calculated to enforce the ECA considering effluent variability and the probability basis of the limit.
2. CHECK. U.S. EPA's simple mass balance equation[3] is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.
3. ADAPT. If step 2 results in:

   (A) receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.

   (B) receiving water metal concentration greater than CTR criteria, then return to bullet 1, selecting a lower ambient hardness value.

The CTR's hardness dependent metals criteria equations contain metal-specific constants, so the criteria vary depending on the metal. Therefore, steps 1

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

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-8, above. Using these hardness values to calculate criteria, which are actual sample results collected in the receiving water, will result in effluent limitations that are protective under all ambient flow conditions. Copper and silver are used as examples below to illustrate the results of the analysis. Tables F-9 and F-10 below summarize the numeric results of the three step iterative approach for copper and silver. As shown in the example tables, ambient hardness values of 210 mg/L (copper) and 210 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 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-9 and F-10 below, summarize the critical flow conditions. However, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

Table F-9. Verification of CTR Compliance for Copper

Receiving water hardness used to compute effluent limitations				**210 mg/L**
Effluent Concentration Allowance (ECA) for Copper[2]				**17.6 µg/L**
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			**Complies with CTR Criteria?**
	Hardness	**CTR Criteria (µg/L)**	**Ambient Copper Concentration[1] (µg/L)**	
1Q10	280	22.5	17.6	**Yes**
7Q10	263	21.3	16.8	**Yes**
Max receiving water flow	118.5	10.8	10.5	**Yes**

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

[2] The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. The effluent limits were calculated per section 1.4 of the SIP, which ensures compliance with the ECA considering effluent variability and the probability basis of each effluent limit.

Table F-10. Verification of CTR Compliance for Silver

Receiving water hardness used to compute effluent limitations				**210 mg/L**
Effluent Concentration Allowance (ECA) for Silver[2]				**14.54 µg/L**
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			**Complies with CTR Criteria?**
	Hardness	**CTR Criteria (µg/L)**	**Ambient Silver Concentration[1] (µg/L)**	
1Q10	280.0	23.9	14.5	**Yes**
7Q10	263.0	21.4	13.6	**Yes**
Max receiving water flow	118.5	5.4	5.3	**Yes**

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

[2] The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for silver as it demonstrates no reasonable potential.

3. Determining the Need for WQBEL's

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

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

i. **1,2-Dichloroethane**

(a) **WQO.** The CTR includes a criterion for 1,2-dichloroethane of 0.38 µg/L for the protection of human health. Order R5-2011-0055-01 included an AMEL of 0.38 µg/L for 1,2-dichlorothane based on this CTR criterion.

(b) **RPA Results.** 1,2-dichloroethane was not detected in the effluent based on 38 samples collected between January 2012 and March 2015. 1,2-dichloroethane was not detected in the receiving water based on three samples collected between January 2012 and March 2015. Therefore, 1,2-dichloroethane in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of human health. Since the discharge does not demonstrate reasonable potential, the effluent limitation for 1,2-dichloobromomethane has not been retained in this Order. Removal of this effluent limitation is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

ii. **Ammonia**

(a) **WQO.** The 1999 U.S. EPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1-hour average; criteria

maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC.

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

The Central Valley Water Board issued a 3 April 2014 *California Water Code Section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life* (13267 Order) requiring the Discharger to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations calculated assuming mussels present using the 2013 Criteria. The Discharger submitted a letter to the Central Valley Water Board indicating their participation in the Central Valley Clean Water Association Freshwater Collaborative Mussel Study. Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plan's narrative toxicity objective.

The 1999 NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Fourteen Mile Slough has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages

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

in Fourteen Mile Slough is likely, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.5, as the Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.5 was used to derive the acute criterion. The resulting acute criterion is 2.14 mg/L.

A chronic criterion was calculated for each day when paired temperature data and pH data were measured using the downstream receiving water data for temperature and pH. Rolling 30-day average criteria were calculated for each day and the minimum observed 30-day average chronic criterion, or the 30-day CCC. The most stringent 30-day CCC was 1.08 mg/L (as N). The 4-day average concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.08 mg/L (as N), the 4-day average concentration that should not be exceeded is 2.71 mg/L (as N).

(b) **RPA Results.** The maximum effluent ammonia concentration was 0.87 mg/L based on 40 samples collected between January 2012 and March 2015. The Discharger performed a duplicate test on the 8 October 2013 ammonia result of 0.87 mg/L, in which ammonia was not detected. Therefore, the Central Valley Water Board has determined that the 8 October 2013 result of 0.87 mg/L is not representative of the discharge from the Facility. Excluding this result, the maximum effluent ammonia concentration was 0.5 mg/L. The maximum observed receiving water concentration was 0.39 mg/L based on three samples collected between January 2012 and March 2015. Therefore the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC criteria. Since the discharge does not demonstrate reasonable potential, the effluent limitations for ammonia have not been retained in this Order. Removal of these effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Chromium VI**

(a) **WQO.** The CTR includes a maximum 1-hour average and 4-day average criteria of 16 µg/L and 11 µg/L, respectively, for chromium VI for the protection of freshwater aquatic life. Order R5-2011-0055-01 included effluent limitations for chromium VI based on the CTR criteria.

(b) **RPA Results.** The MEC for dissolved chromium VI was 9.7 µg/L based on 40 samples collected between January 2012 and March 2015. Chromium VI in the receiving water was either not detected or unquantifiable (MDL 0.5 µg/L, RL 2 µg/L) based on two results collected between January 2012 and March 2015. Therefore, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria. Since the discharge does not demonstrate reasonable potential, the effluent limitations for chromium VI have not been retained in this Order. Removal of the effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

The site is about to enter the final stage of groundwater remediation, which includes in-situ chemical oxidation (ISCO) with potassium permanganate. One of the secondary reaction byproducts of this process is in the temporary mobilization of hexavalent chromium. The Discharger is installing an ion exchange treatment system to remove hexavalent chromium (if needed). Therefore, effluent monitoring for chromium VI is required in this Order.

iv. **Diazinon and Chlorpyrifos**

(a) **WQO.** The Central Valley Water Board completed a TMDL for diazinon and chlorpyrifos in the Sacramento – San Joaquin Delta Waterways and amended the Basin Plan to include diazinon and chlorpyrifos waste load allocations and water quality objectives. The Basin Plan Amendment for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento – San Joaquin Delta was adopted by the Central Valley Water Board on 23 June 2006 and became effective on 10 October 2007.

The amendments "…*modifies Basin Plan Chapter III (Water Quality Objectives) to establish site specific number objectives for diazinon and chlorpyrifos in the Delta Waterways.*" The amendment also "…*identifies the requirements to meet the additive formula already in Basin Plan Chapter IV (Implementation), for the additive toxicity of diazinon and chlorpyrifos*."

The amendment states that "T*he waste load allocations for all NPDES-permitted dischargers…shall not exceed the sum (S) of one (1) as defined below.*

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

Where:

C_d *= diazinon concentration in µg/L of point source discharge*

C_c *= chlorpyrifos concentration in µg/L of point source discharge*

WQO_d *= acute or chronic diazinon water quality objective in µg/L*

WQO_c *= acute or chronic chlorpyrifos water quality objective in µg/L*

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

Appendix A of the Diazinon and Chlorpyrifos TMDL lists waterways subject to the TMDL and includes Fourteen Mile Slough.

(b) **RPA Results**. Diazinon was not detected in the effluent based on two samples collected between January 2012 and March 2015. Diazinon was not detected in the upstream receiving water based on four samples collected between January 2012 and March 2015.

Chlorpyrifos was not detected in the effluent based on 2 samples collected between January 2012 and March 2015. Chlorpyrifos was not detected in

the upstream receiving water based on four samples collected between January 2012 and March 2015.

However, due to the TMDL for diazinon and chlorpyrifos in the Delta, WQBEL's for these constituents are required. The TMDL waste load allocation applies to all NPDES dischargers to Delta waterways and will serve as the basis for WQBEL's at Discharge Point 001.

(c) **WQBEL's.** WQBEL's for diazinon and chlorpyrifos are required based on the TMDL for diazinon and chlorpyrifos for the Delta. Therefore, this Order includes effluent limits calculated based on the waste load allocations contained in the TMDL, as follows:

(1) Average Monthly Effluent Limit

$$S_{AMEL} = \frac{C_{D\ AVG}}{0.079} + \frac{C_{C\ AVG}}{0.012} \leq 1.0$$

$C_{D\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L

$C_{C\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L

(2) Maximum Daily Effluent Limit

$$S_{MDEL} = \frac{C_{D\ MAX}}{0.16} + \frac{C_{C\ MAX}}{0.025} \leq 1.0$$

$C_{D\text{-}max}$ = maximum daily diazinon effluent concentration in µg/L

$C_{C\text{-}max}$ = maximum daily chlorpyrifos effluent concentration in µg/L

(d) **Plant Performance and Attainability.** Diazinon and chlorpyrifos were not detected in the effluent. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Lead**

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used to calculate the criteria for total lead. As described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for lead are 210 µg/L and 8.2 µg/L, respectively. Order R5-2011-0055-01 included effluent limitations for lead because lead was identified as a constituent of concern.

(b) **RPA Results.** Lead was not detected in the effluent in 34 samples collected between January 2012 and March 2015. Lead was not detected in the receiving water based on three samples collected between January 2012 and March 2015. Therefore the effluent does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria. Since the discharge does not demonstrate reasonable potential, the effluent limitations for lead have not been retained in this Order. Removal of the effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet).

b. **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, barium, methylmercury, pH, and salinity. 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.** The Primary MCL for arsenic is 10 µg/L, which is used to interpret the Basin Plan's chemical constituent objective for the protection of the MUN beneficial use. Table III-1 of the Basin Plan contains a specific water quality objective for the Sacramento-San Joaquin Delta for arsenic of 10 µg/L as a maximum concentration.

(b) **RPA Results.** The MEC for arsenic was 20 µg/L based on 40 samples collected between January 2012 and March 2015. The maximum arsenic concentration in the receiving water was 5.9 µg/L based on 14 samples collected between January 2012 and March 2015. 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.** As described in section IV.C.2.c of this Fact Sheet, a mixing zone has been allowed for arsenic resulting in an AMEL of 23 µg/L and MDEL of 29 µg/L. The limits have been carried forward from previous Order R5-2011-0055-01 and are based on Facility performance.

(d) **Plant Performance and Attainability.** The effluent limitations are based on the performance of the treatment system. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Barium**

(a) **WQO.** The Primary MCL for barium is 1,000 µg/L, which is used to interpret the Basin Plan's chemical constituent objective for the protection of the MUN beneficial use. Table III-1 of the Basin Plan contains a specific water quality objective for the Sacramento-San Joaquin Delta for barium 100 µg/L as a maximum concentration.

(b) **RPA Results.** The MEC for barium was 320 µg/L based on 40 samples collected between January 2012 and March 2015. The maximum receiving water barium concentration was 64 µg/L based on 18 samples collected between January 2012 and March 2015. Therefore, barium in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.

(c) **WQBEL's.** As described in section IV.C.2.c of this Fact Sheet, a mixing zone has been allowed for barium resulting in an AMEL of 415 µg/L and a MDEL of 486 µg/L. The limits have been carried forward from previous Order R5-2011-0055-01 and are based on Facility performance.

(d) **Plant Performance and Attainability.** The effluent limitations are based on the performance of the treatment system. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Mercury**

(a) **WQO.** The Basin Plan contains fish tissue objectives for all Delta waterways listed in Appendix 43 of the Basin Plan that states "*…the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length.) The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length*". The Delta Mercury Control Program contains aqueous methylmercury wasteload allocations that are calculated to achieve these fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations of methylmercury greater than 0.06 mg/L (the concentration of methylmercury in water to meet the fish tissue objective). The Facility is allocated 0.010 grams/year of methylmercury, as listed in Table IV-7B of the Basin Plan.

The CTR contains a human health criterion of 50 ng/L for total mercury for waters from which both water and aquatic organisms are consumed. However, in 40 C.F.R. part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "*…more stringent mercury limits may be determined and implemented through the use of the State's narrative criterion*." In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) **RPA Results.** Section 1.3 of the SIP states, "*The RWQCB shall conduct the analysis in this section for each priority pollutant with an applicable criterion or objective,* ***excluding priority pollutants for which a TMDL has been developed, to determine if a water quality-based effluent limitation is required in the discharger's permit****.*" (emphasis added).

The MEC for mercury was 0.00085 µg/L based on 10 samples collected between January 2012 and March 2015. The maximum receiving water mercury concentration was 0.0026 µg/L based on 3 samples collected during the same time period. All 11 effluent results collected between January 2012 and March 2015 for methylmercury were either not detected or unquantifiable. Methylmercury was not detected in the receiving water during the same time.

(c) **WQBEL's.** The mercury concentration in the discharge does not exceed the criteria, therefore the effluent does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria. Since the discharge does not demonstrate reasonable potential, the effluent limitations for mercury have not been retained in this Order. Removal of the effluent limitations is in accordance with federal antibacksliding regulations (see section IV.D.3 of the Fact Sheet). However, the Basin Plan's Delta Mercury Control Program includes wasteload allocations for POTW's in the Delta, including for the Discharger. This Order contains a final WQBEL for methylmercury based on the wasteload allocation. The total calendar annual methylmercury load shall not exceed 0.010 grams.

(d) **Plant Performance and Attainability.** Based on available effluent methylmercury data, the Central Valley Water Board finds the Discharger

is unable to immediately comply with the final WQBEL's for methylmercury. Therefore, a compliance schedule in accordance with the State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been established in this Order.

iv. **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.** The effluent pH ranged from 7.0 to 8.5 while the receiving water pH ranged from 6.62 to 8.8. The pH in the discharge does not exceed the Basin Plan water quality objective, however, the discharge of treated groundwater has a reasonable potential to cause or contribute to an in-stream excursion above the objective.

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

(d) **Plant Performance and Attainability.** The pH in the effluent ranged from 7.0 to 8.5. Thus, the Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, live stock, 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-12.Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective[1]	Secondary MCL[2]	U.S. EPA NAWQC	Effluent	
				Average[3]	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	N/A	891	953
TDS (mg/L)	Varies	500, 1000, 1500	N/A	610	630
Sulfate (mg/L)	Varies	250, 500, 600	N/A	88	88
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	49	49

[1] Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

[2] The Secondary MCL's are stated as a recommended level, upper level, and a short-term maximum level.

[3] Maximum calendar annual average.

(1) **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(2) **Electrical Conductivity.** The Secondary MCL for electrical conductivity is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum.

The Bay-Delta Plan establishes water quality objectives for electrical conductivity at certain compliance points within the Sacramento-San Joaquin Delta. The compliance points nearest the Facility are at the San Joaquin River at Brandt Bridge (approximately 12 miles upstream of the confluence with Fourteen Mile Slough) and the San Joaquin River at Prisoner's Point (approximately 10 miles downstream of the confluence with Fourteen Mile Slough).

Order No. R5-2005-0144-01 required the Discharger to conduct a site-specific salinity study assessing ambient receiving water flows and associated salinity levels and the impact of the discharge on local soil salinity, background water quality, and irrigation and municipal supply users downstream of the discharge. The Discharger submitted the *Site-Specific Salinity Study Report, Groundwater Extraction and Treatment System, Lincoln Center, Stockton, California* (LFR Inc.) on 23 September 2008. The report evaluated electrical conductivity concentrations in Fourteen Mile Slough downstream of the discharge and in the San Joaquin River upstream and downstream of the confluence with Fourteen Mile Slough, and made the following observations:

- Effluent electrical conductivity concentrations are consistently below the AMEL of 900 µmhos/cm in Order No. R5-2005-0144-01;
- Long-term average electrical conductivity levels in the effluent (748 µmhos/cm) are slightly lower than levels found to be protective of crops in a 1974 University of California, Davis study (750 µmhos/cm) and other studies (1,000 µmhos/cm), while exceeding the water quality goal for agriculture (700 µmhos/cm);
- Long-term average electrical conductivity levels in Fourteen Mile Slough at Monitoring Location RSW-002 are below the water quality goal for agriculture (700 µmhos/cm);
- Electrical conductivity levels in the effluent and Fourteen Mile Slough are not increasing over time;
- Comparison of the San Joaquin River upstream and downstream of the confluence with Fourteen Mile Slough indicate that water flows and associated electrical conductivity levels from Fourteen Mile Slough do not cause an increase in electrical conductivity levels in the San Joaquin River;
- The storm sewer to which the Facility discharges may have assimilative capacity for electrical conductivity, which may be due to geochemical reactions as the discharge travels through the 2 miles of concrete pipeline; and
- In general, the San Joaquin River near its confluence with Fourteen Mile Slough is of higher quality (i.e., has lower electrical conductivity levels) than the central and southern portions of the Sacramento-San Joaquin Delta where salinity levels routinely exceed 900 µmhos/cm.

The report concluded that the discharge does not appear to have a negative impact on the electrical conductivity levels in Fourteen Mile Slough or the San Joaquin River. Given the distance between the discharge to Fourteen Mile Slough and the compliance points in the San Joaquin River at Brandt Bridge or Prisoner's Point, and based on the results of the Discharger's study, the Regional Water Board finds that receiving water conditions in Fourteen Mile Slough in the vicinity of the discharge are not similar to conditions in at the Bay-Delta Plan compliance points.

(3) **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(4) **Total Dissolved Solids.** The Secondary MCL for total dissolved solids is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

(b) **RPA Results**

(1) **Chloride.** Chloride concentrations in the effluent ranged from 41 mg/L to 49 mg/L, with an average of 44 mg/L. These levels do not exceed the Secondary MCL for chloride. Background concentrations

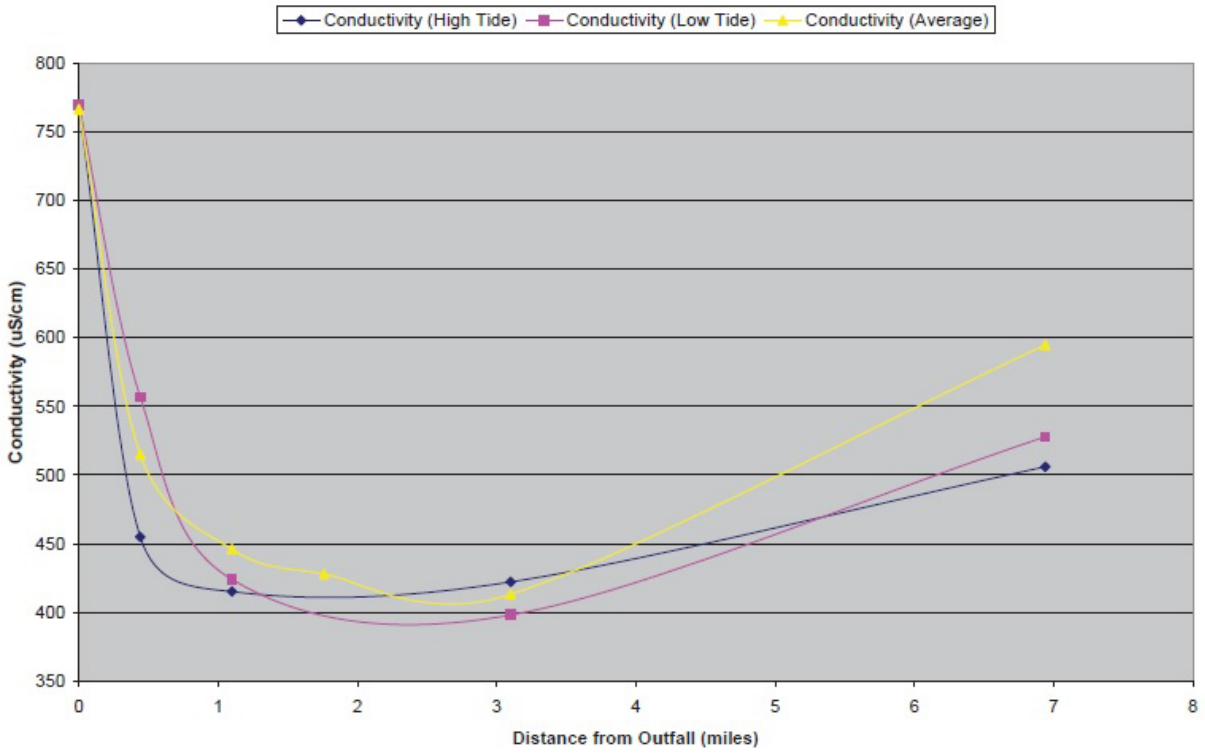
in Fourteen Mile Slough ranged from 120 mg/L to 230 mg/L, with an average of 157 mg/L, for 3 samples collected by the Discharger from January 2012 through March 2015.

(2) **Electrical Conductivity.** A review of the Discharger's monitoring reports shows an average effluent electrical conductivity of 863 µmhos/cm, with a range from 680 µmhos/cm to 953 µmhos/cm. These levels do not exceed the Secondary MCL. The background receiving water electrical conductivity averaged 637 µmhos/cm. These ranges exceed the agricultural water quality goal of 600 µmhos/cm.

Based on the Discharger's 2009 mixing zone study[1] it was demonstrated that the discharge is insignificant compared to the tidal flow in Fourteen Mile Slough. The estimated slough tidal inflow was approximately 16 MGD during neap tides, which represents low tidal flow conditions (i.e., the tidal amplitude is lowest during neap tides). At the current permitted average daily flow of 0.25 MGD, the discharge represents only 1.6% of the daily tidal inflow under reasonable worst-case conditions. Consequently, the impact on electrical conductivity in the slough is minimal. This can be seen in Figure F-2, below, based on the Discharger's 2009 mixing zone study. The downstream receiving water electrical conductivity concentrations in Fourteen Mile Slough were demonstrated to decrease rapidly downstream and then equilibrate to the electrical conductivity concentrations in the San Joaquin River at Juggler's Point (see Figure F-2). San Joaquin River electrical conductivity levels were within 500-600 µmhos/cm during the time of the 2009 mixing zone study.

[1] *Revised Fourteen-Mile Slough Dilution/Mixing Zone Study*, 17 November 2009, prepared by LFR Inc. an Arcadis Company. See also Section IV.C.2.d of the Fact Sheet (Attachment F).

Figure F-2 – Conductivity vs Distance from Outfall (2009 Mixing Zone Study)



(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 65 mg/L to 88 mg/L, with an average of 76 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in Fourteen Mile Slough ranged from 56 mg/L to 430 mg/L, with an average of 269 mg/L.

(4) **Total Dissolved Solids.** The average TDS effluent concentration was 524 mg/L with concentrations ranging from 62 mg/L to 630 mg/L. These levels exceed the Secondary MCL. The background receiving water TDS ranged from 360 mg/L to 540 mg/L, with an average of 360 mg/L.

(c) **WQBEL's.** The Discharger's study demonstrated that an AMEL for electrical conductivity of 900 µmhos/cm at a discharge rate of 0.43 MGD is protective of the agricultural supply and municipal and domestic supply beneficial uses of Fourteen Mile Slough. Electrical conductivity is an indicator parameter for salinity, including total dissolved solids. Establishing effluent limitations for electrical conductivity is expected to effectively limit the constituents that contribute to salinity, including total dissolved solids. Therefore, effluent limitations for total dissolved solids are not established in this Order.

By letter dated 9 December 2014, the Discharger requested an increase in the AMEL for electrical conductivity, because the extracted groundwater has been experiencing a naturally-occurring rise in electrical conductivity. To maintain the same salinity loading to Fourteen Mile Slough, the Discharger also requested a reduction in the discharge rate from 0.43 MGD to 0.25 MGD. The historical electrical conductivity and total dissolved solids data were correlated to estimate the allowed monthly

salinity loading to Fourteen Mile Slough. Based on the salinity data, an average electrical conductivity to total dissolved solids conversion factor of 0.65 (standard deviation of 0.1) was determined [i.e., total dissolved solids (mg/L) = 0.65 × electrical conductivity (µmhos/cm)].

Assuming the total dissolved solids mass load as a constant value, the electrical conductivity value corresponding to the total dissolved solids mass loading in Order R5-2011-0055 at a flow rate of 0.25 MGD is 1,536 µmhos/cm. Therefore, the electrical conductivity AMEL was increased from 900 µmhos/cm to 1,500 µmhos/cm in Order R5-2011-0055-01 by amending Order R5-2015-0076. Consistent with Order R5-2011-0055-01, this Order includes an AMEL of 1,500 µmhos/cm.

In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to continue to implement a salinity evaluation and minimization plan.

(d) **Plant Performance and Attainability.** Monitoring data indicates that the discharge has not exceeded the AMEL of 1,500 µmhos/cm. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible.

4. WQBEL Calculations

a. This Order includes WQBEL's for arsenic, barium, electrical conductivity, methylmercury, and pH. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below.

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

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

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. For ECA's based on MCL's, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. **Basin Plan Objectives and MCL's.** For WQBEL's based on site-specific numeric Basin Plan objectives or MCL's, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. **Aquatic Toxicity Criteria.** WQBEL's based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECA's are converted to equivalent long-term averages (i.e., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

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

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

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

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

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

Summary of Water Quality-Based Effluent Limitations
Discharge Point 001

Table F-13. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants					
pH	standard units	--	--	6.5	8.5
Priority Pollutants					
Arsenic, Total Recoverable	µg/L	23	29	--	--
Non-Conventional Pollutants					
Barium, Total Recoverable	µg/L	415	486	--	--
Diazinon and Chlorpyrifos	µg/L	[1]	--	[2]	--
Electrical Conductivity @ 25˚C	µmhos/cm	1,500	--	--	--
Methylmercury	grams/year	0.010[3]	--	--	--

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum

[1] Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{D\ M-AVG}}{0.08} + \frac{C_{C\ M-AVG}}{0.012} \leq 1.0$$

$C_{D\ M\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L.
$C_{C\ M\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L.

[2] Maximum Daily Effluent Limitation

$$S_{MDEL} = \frac{C_{D\ MAX}}{0.16} + \frac{C_{C\ MAX}}{0.025} \leq 1.0$$

$C_{D\ MAX}$ = maximum daily diazinon effluent concentration in µg/L.
$C_{C\ MAX}$ = maximum daily chlorpyrifos effluent concentration in µg/L.

[3] The effluent calendar year annual methylmercury load shall not exceed 0.010 grams.

5. Whole Effluent Toxicity (WET)

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

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

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Therefore, due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility treats groundwater containing toxic pollutants. 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 III-8.00.) As shown in the table below, based on chronic WET testing performed by the Discharger from 11 June 2012 through 14 April 2015, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

Table F-14. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
11 June 2012	1	1	--	--	--
12 June 2012	--	--	1	1	--
14 June 2012	--	--	--	--	1
24 October 2012	1	1	--	--	--
26 October 2012	--	--	1	1	--
29 October 2012	--	--	--	--	1
3 April 2013	1	1	--	--	--
5 April 2013	--	--	1	1	--
8 April 2013	--	--	--	--	1
9 October 2013	1	1	--	--	--
11 October 2013	--	--	1	1	--
14 October 2013	--	--	--	--	1
2 April 2014	1	1	--	--	--
4 April 2014	--	--	1	1	--
7 April 2014	--	--	--	--	1
8 October 2014	1	1	--	--	--
10 October 2014	--	--	1	1	--
13 October 2014	--	--	--	--	1
8 April 2015	1	1	--	--	--
13 April 2015	--	--	1	1	--
14 April 2015	--	--	--	--	1

The Monitoring and Reporting Program of this Order requires semi-annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring,

and requirements for Toxicity Reduction Evaluation (TRE) initiation if toxicity is demonstrated.

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

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

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

40 C.F.R section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order does not include effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CF.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH, and when the applicable standards are expressed in terms

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

of concentration (e.g., CTR criteria and MCL's) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

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 publicly owned treatment works unless impracticable.

Water quality objectives in the Basin Plan for pH are applied directly as instantaneous effluent limitations. Effluent limitations for arsenic and barium are performance-based, and are applied as MDEL's. Final effluent limitations for VOC's and total petroleum hydrocarbons (gasoline range) are technology-based effluent limitations which have been established as MDEL's based on the ML's in the SIP and/or current, commonly achieved reporting levels. These effluent limitations are more stringent than the applicable water quality-based AMEL's and MDEL's. Therefore, there are no AMEL's for these constituents in this Order.

3. Satisfaction of Anti-Backsliding Requirements

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for 1,2-dichloroethane, ammonia, chromium VI, lead, mercury (concentration and mass-based limitations based on the CTR), arsenic, and barium. The effluent limitations for these pollutants are less stringent than those in Order R5-2011-0055-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent WQBEL's "*except in compliance with Section 303(d)(4).*" CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

   i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLA's will assure the attainment of such water quality standards.

   ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

   Fourteen Mile Slough is considered an attainment water for 1,2-dichloroethane, ammonia, chromium VI, lead, arsenic, and barium because the receiving water is not listed as impaired on the 303(d) list for these constituents.[1] Fourteen Mile Slough is not considered an attainment water for mercury; however, effluent limitations for mercury are contained in this Order in compliance with the Delta Methylmercury TMDL, and are therefore protective of the receiving water. As discussed in section IV.D.4, below, removal or relaxation of the effluent limits complies with federal and state antidegradation requirements. Thus, removal or relaxation of the effluent limitations for 1,2-dichloroethane, ammonia, chromium VI, lead, mercury (concentration and mass-based limitations based on the CTR), arsenic, and barium from Order R5-2011-0055-01 meets the exception in CWA sections 303(d)(4)(A) and (B).

[1] "*The exceptions in Section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list*." State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

b. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.a of this Fact Sheet, updated information that was not available at the time Order R5-2011-0055-01 was issued indicates that 1,2-dichloroethane, ammonia, chromium VI, lead, and mercury do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

i. **1,2-dichloroethane.** Effluent and receiving water monitoring data collected between January 2012 and March 2015 indicates that 1,2-dichloroethane in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criterion for the protection of human health.

ii. **Ammonia.** Effluent and receiving water monitoring data collected between January 2012 and March 2015 indicates that ammonia in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the NAWQC criteria for the protection of aquatic life.

iii. **Chromium VI.** Effluent and receiving water monitoring data collected between January 2012 and March 2015 indicates that chromium VI in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of aquatic life.

iv. **Lead.** Effluent and receiving water monitoring data collected between January 2012 and March 2015 indicates that lead in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criterion for the protection of aquatic life.

v. **Mercury.** Effluent and receiving water monitoring data collected between January 2012 and March 2015 indicates that mercury in the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the CTR criterion for mercury. A final mass-loading limitation for methylmercury and an interim performance-based mass-loading limitation for total mercury has been included in this Order consistent with the applicable TMDL.

Thus, removal of the effluent limitations for 1,2-dichloroethane, ammonia, chromium VI, lead, and mercury (from Order R5-2011-0055-01 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

4. Antidegradation Policies

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the

use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes effluent limitations for 1,2-dichloroethane, ammonia, chromium VI, lead, and mercury (concentration and mass based limitations based on the CTR) based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. The removal of WQBEL's for these parameters will not results in an increase in pollutants concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the removal of the effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. Thus, the removal and relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

Previous Order R5-2011-0055-01 included maximum daily effluent limits for arsenic and barium that were based on Facility performance. Federal regulations (40 C.F.R. section 122.45 (d)), requires maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works unless impracticable. To comply with the federal regulations average monthly effluent limitations have also been established in this Order. The existing maximum daily effluent limitations were carried forward from previous Order R5-2011-0055-01 have been changed to average monthly effluent limits and new maximum daily effluent limitations have been calculated based on effluent variability. The limits continue to be based on Facility performance and thus will not result in an increase in pollutant concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the relaxation of the maximum daily effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water and is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, total petroleum hydrocarbons (gasoline range), and VOC's. Restrictions on flow, total petroleum hydrocarbons (gasoline range), and VOC's are discussed in this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

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

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

Summary of Final Effluent Limitations
Discharge Point 001

Table F-15. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis[1]
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Average Daily Flow	MGD	--	0.25	--	--	DC
Conventional Pollutants						
pH	standard units	--	--	6.5	8.5	PB
Priority Pollutants						
Arsenic, Total Recoverable	µg/L	23	29	--	--	PB
Non-Conventional Pollutants						
Barium, Total Recoverable	µg/L	415	486	--	--	BP
Diazinon and Chlorpyrifos	µg/L	[2]	--	[3]	--	TMDL
Electrical Conductivity @ 25˚C	µmhos/cm	1,500	--	--	--	PB
Methylmercury	grams/year	0.010[4]	--	--	--	TMDL
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	--	50	--	--	ML
Volatile Organic Compounds	µg/L	--	0.5	--	--	ML
Acute Toxicity	% Survival	70[5]/90[6]	--	--	--	BP
Chronic Toxicity	TUc	--	[7]	--	--	BP

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

[1] DC – Based on the design capacity of the Facility.
PB – Based on Facility performance.
BP – Based on water quality objectives contained in the Basin Plan.
TMDL – Based on the applicable TMDL.
ML – Based on the technical capability of the groundwater treatment system to dependably remove the groundwater contaminants to concentrations that are non-detectable by current analytical technology.

[2] Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{D\ M-AVG}}{0.08} + \frac{C_{C\ M-AVG}}{0.012} \leq 1.0$$

$C_{D\ M\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L.
$C_{C\ M\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L.

[3] Maximum Daily Effluent Limitation

$$S_{MDEL} = \frac{C_{D\ MAX}}{0.16} + \frac{C_{C\ MAX}}{0.025} \leq 1.0$$

$C_{D\ MAX}$ = maximum daily diazinon effluent concentration in µg/L.
$C_{C\ MAX}$ = maximum daily chlorpyrifos effluent concentration in µg/L.

[4] The effluent calendar year annual methylmercury load shall not exceed 0.010 grams.

[5] 70% minimum of any one bioassay.

[6] 90% median for any three consecutive bioassays.

[7] There shall be no chronic toxicity in the effluent discharge.

E. Interim Effluent Limitations

The State Water Board's Resolution 2008-0025 "Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits" (Compliance Schedule Policy) requires the Central Valley Water Board to establish interim numeric effluent limitations in this Order for compliance schedules longer than one year. As discussed in section VI.B.7 of this Fact Sheet, the Central Valley Water Board is approving a compliance schedule longer than one year for methylmercury. The Compliance Schedule Policy requires that interim effluent limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. Consistent with the Delta Mercury Control Program, this Order includes interim effluent limitations for total mercury based on Facility performance

1. **Compliance Schedule for Methylmercury.** This Order contains a new final effluent limitation for methylmercury based on the new objective that became effective on 20 October 2011. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger's application demonstrates the need for additional time to implement actions to comply with the new limitations, as described below. Therefore, a compliance schedule for compliance with the effluent limitations for methylmercury is established in the Order.

   A compliance schedule is necessary because the Discharger must implement actions, including a Phase 1 Methylmercury Control Study and possible upgrades to the Facility, to comply with the final effluent limitations.

   The Discharger has made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream. The Discharger collected quarterly samples for mercury and methylmercury during the term of Order R5-2011-0055-01.

The compliance schedule is as short as possible. The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. Therefore, at this time it is uncertain what measures must be taken to consistently comply with the waste load allocation for methylmercury. The interim effluent limits and final compliance date may be modified at the completion of Phase 1.

Interim performance-based limitations have been established in this Order. The interim limitations were determined as described in section IV.E.2, below, and are in effect until the final limitations take effect. The interim numeric effluent limitations and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

2. **Interim Limits for Methylmercury.** The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or previous final permit limitations, whichever is more stringent. When feasible, interim limitations must correspond with final permit effluent limitations with respect to averaging bases (e.g., AMEL, MDEL, average monthly, etc.) for effluent limitations for which compliance protection is intended.

   For mercury, the Delta Mercury Control Program requires facilities to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of the 12-month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges.

   The interim limitations for total mercury in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9 percent of the data points lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row). Therefore, the 99.9th percentile was determined using the mean plus 3.3 standard deviations of the available data.

   Total mercury effluent data collected from January 2012 through March 2015 was used to determine performance-based interim effluent limitations. 12-month running mercury loads were determined and used to calculate the 99.9th percentile.

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

The following table summarizes the calculations of the interim effluent limitations for total mercury based on the Facility's current performance (January 2012 through March 2015). **Effective immediately, and until 31 December 2030**, the effluent calendar annual total mercury load shall not exceed 0.18 grams. These interim effluent limitations shall apply in lieu of the final effluent limits for methylmercury.

Table F-16. Interim Effluent Limitation Calculation Summary

Parameter	Units	Maximum Effluent Concentration	Mean	Standard Deviation	Number of Samples	Interim Limitation
Mercury, Total Recoverable	g/year	0.14	0.08	0.03	14	0.18

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

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

   a. **Temperature.** This Order includes a receiving water limitation for temperature requiring that the natural temperature of the receiving water not be increased by more than 5°F, consistent with the water quality objective for temperature in the Basin Plan. The Central Valley Water Board generally determines compliance with this requirement based on the difference in temperature at the upstream and downstream receiving water monitoring locations. The Facility discharges to a storm drain that terminates at the head of Fourteen Mile Slough. Therefore, there is no physical upstream receiving water monitoring location and it is infeasible to collect upstream receiving water samples to determine compliance with this receiving water limitation. However, because the discharge from the Facility is composed of treated groundwater, the discharge is not expected to cause negative impacts on the beneficial uses in Fourteen Mile Slough. This Order requires downstream receiving water monitoring at Monitoring Location RSW-002 for temperature to characterize the impacts of the discharge in Fourteen Mile Slough.

   b. **Turbidity.** The Central Valley Water Board generally determines compliance with this requirement based on the observed turbidity at the upstream and downstream receiving water monitoring locations. The Facility discharges to a storm drain that terminates at the head of Fourteen Mile Slough. Therefore, there is no physical upstream receiving water monitoring location and it is infeasible to collect upstream receiving water samples to determine compliance with this receiving water limitation. However, because the discharge from the Facility is composed of treated groundwater, the discharge is not expected to cause negative impacts on the

beneficial uses in Fourteen Mile Slough. This Order requires downstream receiving water monitoring at Monitoring Location RSW-002 for turbidity to characterize the impacts of the discharge in Fourteen Mile Slough.

B. Groundwater – Not Applicable

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

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

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 spans a period of approximately 9 years. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and wasteload allocations after implementing all reasonable load reduction strategies. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules may be adjusted at the end of Phase 1, or subsequent program reviews, as appropriate. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.

b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating 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 WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

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. **Performance-based Effluent Limitations for Arsenic and Barium.** The groundwater treatment system currently comprises 21 A-Zone and 10 B-Zone groundwater extraction wells. In summer 2008, samples were taken at the treatment system influent for the A-Zone and B-Zone aquifers separately by selectively running the extraction wells. The sampling plan implemented ran each zone exclusively for an extended period of time to flush the conveyance line and achieve an overall equilibrium of the metals in each zone prior to sampling. The sampling was performed to determine relative contributions of arsenic and barium. The sampling found an arsenic concentration of 6.8 µg/L in the A-Zone wells and 21 µg/L in the B-Zone wells. The sampling found a barium concentration of 270 µg/L in the A-Zone wells and 410 µg/L in the B-Zone wells. These results indicate that the B-Zone wells contribute significantly more arsenic and barium than the A-Zone wells. Therefore, if the A-Zone wells are not pumped, effluent levels of arsenic and barium would be much higher than they have been historically. There is potential for a greater fraction of the discharge to be derived from B-Zone wells in the future because the A-Zone wells foul more often than the B-Zone wells and the need for pumping in the A-Zone wells may decrease as the size of the plume decreases. Therefore, the calculation of the performance-based effluent limitations for arsenic and barium may need to be re-evaluated in the future, depending on the groundwater pumping schemes or relevant changes in either precipitation patterns or groundwater elevations. If the Discharger submits a report describing changes in the concentration of arsenic or barium in groundwater influent to the treatment system that are expected or encountered due to naturally occurring processes (e.g., significant changes in precipitation patterns, increases or decreases in groundwater elevations, or changes in the distribution of VOC's requiring adjustment of pumping rates or installation of additional extraction wells), this Order may be reopened to modify the performance-based effluent limitations for arsenic and/or barium.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00.) Based on whole effluent chronic toxicity testing performed by the Discharger from 11 June 2012 through 14 April 2015, 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 for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, this provision includes a numeric toxicity monitoring

trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of >1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

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

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

See the WET Accelerated Monitoring Flow Chart (Figure F-3), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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

i. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.

ii. *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.

iii. *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition*, EPA 600/6-91/003, February 1991.

iv. *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA/600/6-91/005F, May 1992.

v. *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA/600/R-92/080, September 1993.

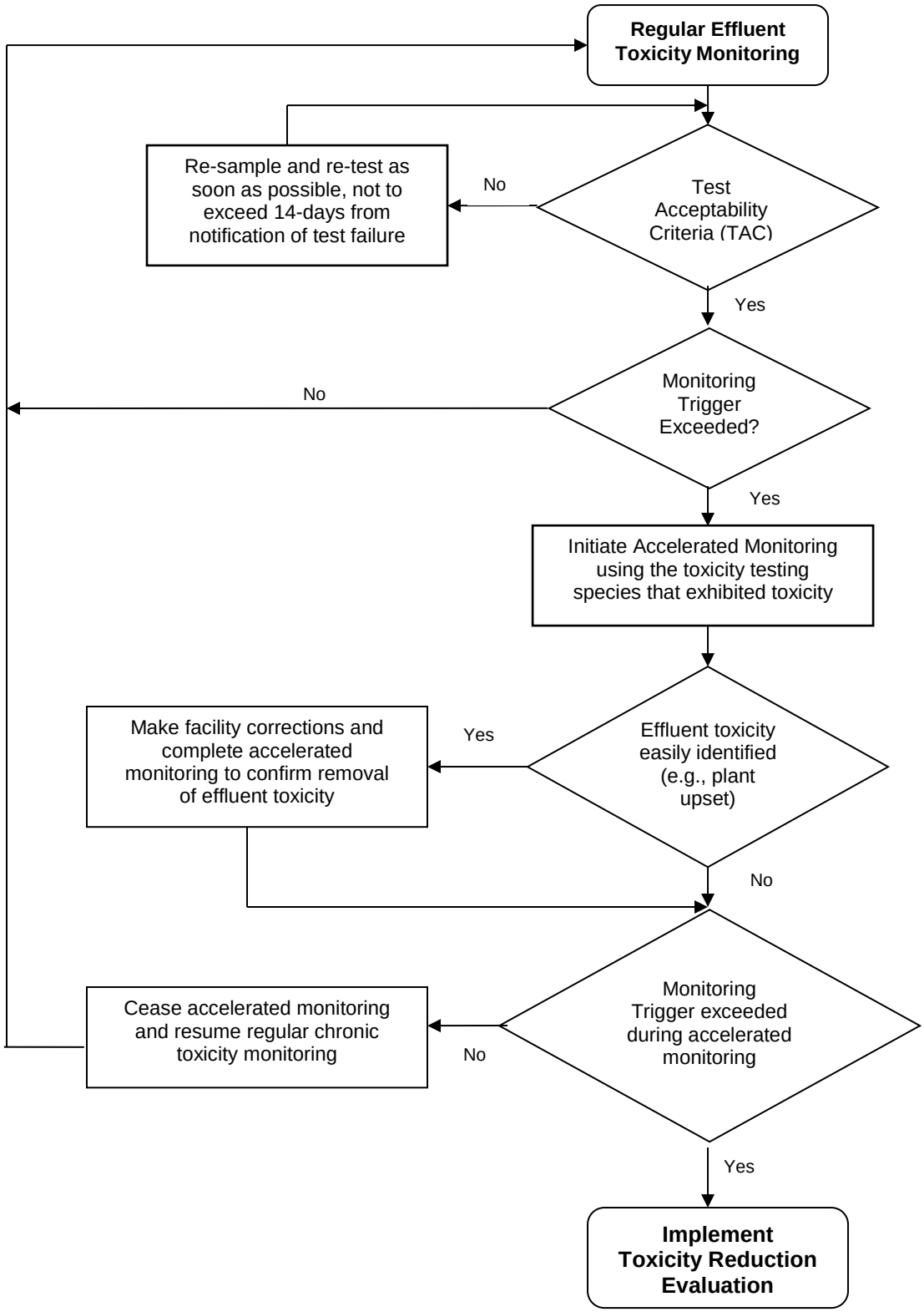
vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA 600/R-92/081, September 1993.

vii. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition*, EPA-821-R-02-012, October 2002.

viii. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA-821-R-02-013, October 2002.

ix. *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991.

Figure F-3
WET Accelerated Monitoring Flow Chart



b. **Phase 1 Methylmercury Control Study.** The Basin Plan's Delta Mercury Control Program requires NPDES dischargers, working with other stakeholders, to conduct methylmercury control studies (Control Studies) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve their methylmercury load and waste load allocations. Control studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. The Discharger has agreed to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study).

The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. The objective of the Control Studies is to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury load and wasteload allocations. In accordance with the Delta Mercury Control Plan, a work plan was submitted on 20 April 2013 by CVCWA on behalf of a group of POTWs in the region. The Central Valley Water Board commits to supporting an adaptive management approach. The adaptive management approach includes the formation of a Stakeholder Group(s) and a Technical Advisory Committee (TAC).

The Study shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve the methylmercury allocation. The Study also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure. The Study may evaluate the effectiveness of using inorganic (total) mercury controls to control methylmercury discharges. The Study shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness; and costs, potential environmental effects, and overall feasibility of the control actions. The Study shall also include proposed implementation plans and schedules to comply with methylmercury allocations as soon as possible. The Study shall be submitted by **20 October 2018**.

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

3. Best Management Practices and Pollution Prevention

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

b. **Mercury Exposure Reduction Program.** The Basin Plan's Delta Mercury Control Program requires dischargers to participate in a Mercury Exposure Reduction Program. The Exposure Reduction Program is needed to address public health impacts of mercury in Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in Delta caught fish, such as subsistence fishers and

their families. The Exposure Reduction Program must include elements directed toward:

i. Developing and implementing community-driven activities to reduce mercury exposure;

ii. Raising awareness of fish contamination issues among people and communities most likely affected by mercury in Delta-caught fish such as subsistence fishers and their families;

iii. Integrating community-based organizations that serve Delta fish consumers, Delta fish consumers, tribes, and public health agencies in the design and implementation of an exposure reduction program;

iv. Identifying resources, as needed, for community-based organizations and tribes to participate in the Program;

v. Utilizing and expanding upon existing programs and materials or activities in place to reduce mercury, and as needed, create new materials or activities; and

vi. Developing measures for program effectiveness.

This Order requires the Discharger to participate in a Mercury Exposure Reduction Program (MERP) in accordance with the Delta Mercury Control Program. The Discharger elected to provide financial support in the collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. The objective of the Exposure Reduction Program is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the Exposure Reduction Program objective, elements, and the Discharger's coordination with other stakeholders. The Discharger shall integrate or, at a minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities. The Discharger shall continue to participate in the group effort to implement the work plan.

4. Construction, Operation, and Maintenance Specifications – Not Applicable

5. Special Provisions for Municipal Facilities (POTW's Only) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 C.F.R. section 122.44(d). There are exceptions to this general rule. The State Water Board's Resolution 2008-0025 "*Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*" (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.

In accordance with the Compliance Schedule Policy and 40 C.F.R. section 122.47, a discharger who seeks a compliance schedule must demonstrate additional time is necessary to implement actions to comply with a more stringent permit limitation. The discharger must provide the following documentation as part of the application requirements:

- Diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;
- Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have established;
- A proposed schedule for additional source control measures or waste treatment;
- Data demonstrating current treatment facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim, permit effluent limit to apply if a schedule of compliance is granted;
- The highest discharge quality that can reasonably be achieved until final compliance is attained;
- The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs; and
- Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

Based on information submitted with the ROWD, SMR's, and other miscellaneous submittals, it has been demonstrated to the satisfaction of the Central Valley Water Board that the Discharger needs time to implement actions to comply with the new effluent limitations for methylmercury.

a. **Methylmercury.** The Delta Mercury Control Program is composed of two phases. Phase 1 spans from 20 October 2011 through the Phase I Delta Mercury Control Program Review, expected to conclude by October 2020. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetland, and open-water habitats; and reducing total mercury loading to San Francisco Bay, as required by the *Water Quality Control Plan for the San Francisco Bay Basin*.

   At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and waste load allocations after implementing all reasonable load reduction strategies. The review also will consider other potential public and environmental benefits and negative impacts (e.g., habitat restoration, flood protection, water supply, fish consumption) of attaining the allocations. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage

analysis, fish tissue objectives, allocations, and time schedules shall be adjusted at the end of Phase 1, or subsequent program reviews, if appropriate.

Phase 2 begins after the Phase 1 Delta Mercury Control Program Review or by 20 October 2022, whichever occurs first, and ends in 2030. During Phase 2, dischargers shall implement methylmercury control programs and continue inorganic (total) mercury reduction programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2. Any compliance schedule contained in an NPDES permit must be "... a*n enforceable sequence of actions or operations leading to compliance with an effluent limitation*..." per the definition of a compliance schedule in CWA Section 502(17). See also 40 C.F.R. section 122.2 (definition of schedule of compliance). The compliance schedule for methylmercury meets these requirements.

Federal Regulations at 40 C.F.R. section 122.47(a)(1) requires that, "*Any schedules of compliance under this section shall require compliance as soon as possible*..." The Compliance Schedule Policy also requires that compliance schedules are as short as possible and may not exceed 10 years, except when "...*a permit limitation that implements or is consistent with the waste load allocations specified in a TMDL that is established through a Basin Plan amendment, provided that the TMDL implementation plan contains a compliance schedule or implementation schedule*." As discussed above, the Basin Plan's Delta Mercury Control Program includes compliance schedule provisions and allows compliance with the waste load allocations for methylmercury by 2030. Until the Phase 1 Control Studies are complete and the Central Valley Water Board conducts the Phase 1 Delta Mercury Control Program Review, it is not possible to determine the appropriate compliance date for the Discharger that is as soon as possible. Therefore, this Order establishes a compliance schedule for the new, final WQBEL's for methylmercury with full compliance required by 31 December 2030, which is consistent with the Final Compliance Date of the TMDL. At completion of the Phase 1 Delta Mercury Control Program Review, the final compliance date for this compliance schedule will be re-evaluated to ensure compliance is required as soon as possible. Considering the available information, the compliance schedule is as short as possible in accordance with federal regulations and the Compliance Schedule Policy.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess the performance of the groundwater treatment system. The monitoring frequencies for flow (continuous), electrical conductivity (quarterly), total petroleum hydrocarbons (gasoline range) (quarterly), and volatile organic carbons (quarterly) have been retained from Order R5-2011-0055-01.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to

assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. Effluent monitoring frequencies and sample types for flow (continuous), pH (monthly), arsenic (monthly), 1,2-dichloroethane (monthly), methylmercury (quarterly), barium (monthly), dissolved oxygen (monthly), electrical conductivity (monthly), temperature (monthly), total dissolved solids (quarterly), total petroleum hydrocarbons (gasoline range) (monthly), and volatile organic carbons (monthly) have been retained from Order R5-2011-0055-01 to determine compliance with effluent limitations for these parameters.

3. Monitoring data collected over the term of Order R5-2011-0055-01 for lead, methylene chloride, ammonia, chloride, and sulfate did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2011-0055-01.

4. Monitoring data collected over the term of Order R5-2011-0055-01 for chromium VI did not demonstrate reasonable potential to exceed water quality objectives/criteria. However, the site is about to enter the final stage of groundwater remediation, which includes in-situ chemical oxidation with potassium permanganate. One of the secondary reaction byproducts of this process is the temporary mobilization of hexavalent chromium. The Discharger is installing an ion exchange treatment system to remove hexavalent chromium (if needed). Therefore, quarterly effluent monitoring for chromium is still necessary.

5. This Order reduces the monitoring frequency for hardness from monthly to quarterly and the monitoring frequency for mercury from monthly to quarterly. The Central Valley Water Board finds that this frequency is sufficient to characterize the effluent.

6. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern once during 2019. This monitoring frequency has been reduced from quarterly for one year, as required in Order R5-2011-0055-01. The Central Valley Water Board finds that this frequency is sufficient to characterize the effluent. See section IX.A of the Monitoring and Reporting Program (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

7. Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.*" The DDW certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

   Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the 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 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.** Consistent with Order R5-2011-0055-01, annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Consistent with Order R5-2011-0055-01, semi-annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. **Delta Regional Monitoring Program.** The Central Valley Water Board requires individual dischargers and discharger groups to conduct monitoring of Delta waters and Delta tributary waters in the vicinity of their discharge, known as ambient (or receiving) water quality monitoring. This monitoring provides information on the impacts of waste discharges on Delta waters, and on the extant condition of the Delta waters. However, the equivalent funds spent on current monitoring efforts could be used more efficiently and productively, and provide a better understanding of geographic and temporal distributions of contaminants and physical conditions in the Delta, and of other Delta water quality issues, if those funds were used for a coordinated ambient monitoring effort, rather than continue to be used in individual, uncoordinated ambient water quality monitoring programs. The Delta Regional Monitoring Program will provide data to better inform management and policy decisions regarding the Delta.

This Order allows the Discharger to elect to participate in the Delta Regional Monitoring Program in lieu of conducting all or part of the individual receiving water monitoring required in the Monitoring and Reporting Program. If the Discharger elects to cease individual receiving water monitoring and participate in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative to the Executive Officer informing the Central Valley Water Board that the Discharger will participate in the Delta Regional Monitoring Program and the date on which individual receiving water monitoring under Attachment E, Sections VIII.A and VIII.B, will cease or be modified. Approval by the Executive Officer is required, and contingent on Delta Regional Monitoring Program Steering Committee action on the forthcoming Regional Monitoring Program monitoring plan.

Delta Regional Monitoring Program data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Permit. Delta Regional Monitoring Program monitoring stations are established generally as "integrator sites" to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent, but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring Program monitoring data may be used to help establish background receiving water quality for an RPA in an NPDES permit after evaluation of the applicability of the data for that purpose. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an

assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

If the Discharger begins to participate in the Delta Regional Monitoring Program in lieu of individual receiving water monitoring, the Discharger shall continue to participate in the Delta Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta Regional Monitoring Program will cease and individual monitoring is reinstituted. Receiving water monitoring under Attachment E, Sections VIII.A and VIII.B, is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. Participation in the Delta Regional Monitoring Program by a Discharger shall consist of providing funds and/or in-kind services to the Delta Regional Monitoring Program at least equivalent to discontinued individual monitoring and study efforts. If a discharger or discharger group fails to maintain adequate participation in the Delta Regional Monitoring Program, as determined through criteria to be developed by the Delta Regional Monitoring Program Steering Committee, the Steering Committee will recommend to the Central Valley Water Board that an individual monitoring program be reinstated for that discharger or discharger group.

If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the receiving water portion of the required Characterization Monitoring need not be conducted by the Discharger. Instead, data from the Delta Regional Monitoring Program will be utilized to characterize the receiving water in the permit renewal. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Monitoring. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Historic receiving water monitoring data taken by the Discharger and from other sources may also be evaluated to determine whether or not that data is representative of current receiving water conditions. If found to be representative of current conditions, then that historic data may be used in characterizing receiving water quality for the purposes of Reasonable Potential analysis.

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

c. **Monitoring Location RSW-002**

   i. Downstream receiving water monitoring requirements have been retained for tide stage (quarterly), pH (monthly), dissolved oxygen (quarterly), electrical conductivity (monthly), hardness (quarterly), temperature (monthly), and turbidity (quarterly).

d. **Monitoring Location RSW-003**

   i. Receiving water monitoring requirements for the edge of the mixing zone have been reduced from quarterly (for flow, tide stage, pH, arsenic, barium,

dissolved oxygen, electrical conductivity, temperature, and turbidity) to quarterly for 1 year, to be conducted with the receiving water characterization monitoring. The Central Valley Water Board finds that this frequency is sufficient to characterize the receiving water.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements – Not Applicable

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the Lincoln Center Environmental Remediation Trust, Groundwater Treatment System. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following: posting of a notice of public hearing (Notice) at the Facility and the Stockton City Hall. The Notice was also posted on the Central Valley Water Board's website.

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:
http://www.waterboards.ca.gov/centralvalley/board_info/meetings/

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on **1 February 2016**.

C. Public Hearing

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date:	18/19 February 2016
Time:	8:30 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDR's. The petition must be received by the State Water Board at the following address within 30 calendar days of the Central Valley Water Board's action:

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

For instructions on how to file a petition for review, see
http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Danielle Siebal at (916) 464-4843.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
1,2-Dichloroethane	µg/L	<0.077	<0.077	0.38	--	--	0.38	99	--	0.5	No
Ammonia Nitrogen, Total (as N)	mg/L	J 0.5	0.39	1.08	2.14[1]	1.08[2]	--	--	--	--	No
Arsenic, Total Recoverable	µg/L	20	<0.5	10	340	150	--	--	10[3]	10	Yes
Barium, Total Recoverable	µg/L	320	52	100	--	--	1,000	--	100[3]	1,000	Yes
Chloride	mg/L	47	120	230	860[1]	230[4]	--	--	--	250	No
Chromium VI	µg/L	9.7	<0.1	11	16	11	--	--	--	--	No
Electrical Conductivity @ 25°C	µmhos/cm	953[5]	706[5]	900	--	--	--	--	--	900	No[6]
Lead, Total Recoverable	µg/L	J 1.0	<0.5	8.2	210	8.2	--	--	--	15	No
Mercury, Total Recoverable	µg/L	0.00082	0.000026	0.050	--	--	0.050	0.051	--	2	No
Sulfate	mg/L	88[5]	56[5]	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	610[5]	420[5]	500	--	--	--	--	--	500	No[6]

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

Footnotes:
(1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
(2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
(3) Water quality objectives for metals in Table III-1 of the Basin Plan are expressed in dissolved form. For priority pollutant metals with translators specified in the CTR, the translators specified in the CTR have been used to determine applicable total recoverable objectives. For the remaining metals, a translator of 1 is assumed in the absence of a specific translator.
(4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(5) Represents the maximum observed average annual concentration for comparison with the Secondary MCL.
(6) See section IV.C.3 of the Fact Sheet (Attachment F) for a discussion of the RPA results.