CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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ORDER R5-2015-XXXX
NPDES NO. CA0083721

WASTE DISCHARGE REQUIREMENTS FOR THE BELL-CARTER OLIVE COMPANY, INC. AND CITY OF CORNING BELL-CARTER INDUSTRIAL WASTEWATER TREATMENT PLANT

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

Table 1. Discharger Information

Discharger	Bell-Carter Olive Company, Inc. and City of Corning
Name of Facility	Bell-Carter Industrial Wastewater Treatment Plant
Facility Address	Gardiner Ferry Road
	Corning, CA 96021
	Tehama County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Process Wastewater	39° 54' 24"	122° 5' 13"	Sacramento River

Table 3. Administrative Information

This Order was adopted on:	**<Adoption Date>**
This Order shall become effective on:	**<Effective Date>**
This Order shall expire on:	**<Expiration Date>**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**180 days prior to the Order expiration date**
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Minor

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

_____
PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

Information describing the Bell-Carter Industrial Wastewater Treatment Plant (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

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

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

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

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

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

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

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

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

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

THEREFORE, IT IS HEREBY ORDERED that Order R5-2007-0166 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.

D. The Discharger shall not allow pollutant-free wastewater to be discharged into the industrial sewer, treatment, or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

E. The discharge of brine-curing and olive processing wastewater, exclusive of rainwater and infiltration, to the Class II Surface Impoundments in excess of 255 million gallons per year is prohibited.

F. Discharge from Pond 6 is prohibited except when necessary due to inability to discharge from Pond 7, and upon approval of the Executive Officer.

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	Average Annual
Flow	MGD	0.95	1.4	0.75
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	100	150	--
	lbs/day	792[1]	1,168[3]	--
	lbs	--	--	320,000[6]
Total Suspended Solids	mg/L	100	200	--
	lbs/day	792[1]	1,168[3]	--
	lbs	--	--	600,000[6]
Priority Pollutants				
Copper, Total Recoverable	µg/L	63	125	--
Zinc, Total Recoverable	µg/L	67	135	--
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	15	44	--
	lbs/day	120[1]	510[2]	--
Iron, Total Recoverable	µg/L	--	--	4,200
Chloride	lbs/day	--	27,900[4]	20,900[7]
Settleable Solids	ml/L	0.1	0.2	--
Total Dissolved Solids	lbs/day	--	79,800[5]	59,800[8]

[1] Based on an average monthly flow of 0.95 MGD.
[2] Based on a daily maximum flow of 1.4 MGD.
[3] Based on a daily maximum flow of 1.4 MGD and a concentration of 100 mg/L.
[4] Based on a flow rate of 1.0 MGD and a concentration of 3,350 mg/L.
[5] Based on a flow rate of 1.0 MGD and a concentration of 9,560 mg/L.
[6] Total annual mass limit for calendar year.
[7] Calendar annual average limit based on a flow rate of 0.75 MGD and a concentration 3,350 mg/L.
[8] Calendar annual average limit based on a flow rate of 0.75 MGD and a concentration 9,560 mg/L.

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. pH. The instantaneous minimum pH shall not be less than 6.5 and the instantaneous maximum pH shall not be greater than 9.5.

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

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

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

i. **Average Monthly Effluent Limitation**

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

$C_{D\text{-}avg}$ = 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**

$$S_{avg} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$

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

2. Interim Effluent Limitations – Not Applicable

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 the Sacramento River:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
   - **a.** The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
   - **b.** The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation;
   - **c.** The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time; nor
   - **d.** From 1 June to 31 August, concentrations of dissolved oxygen to fall below 9.0 mg/L. When natural conditions lower dissolved oxygen below this level, the concentration shall be maintained at or above 95 percent saturation.
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. section 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. **Salinity.** Electrical conductivity to exceed 230 µmhos/cm (50 percentile) or 235 µmhos/cm (90 percentile) at Knights Landing above Colusa Basin Drain, based upon previous 10 years of record.

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

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

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

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

16. **Temperature.** The natural temperature to be increased by more than 5°F, or to higher than 56°F when such an increase will be detrimental to the fishery, whichever is more

restrictive. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

17. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

18. **Turbidity:**

    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

1. The Facility is also regulated as a Class II Surface Impoundment facility under Title 27, California Code of Regulations (CCR). The Waste Discharge Requirements (WDR Order No. 5-00-114) for the Class II Surface Impoundments pertain only to operational factors associated with the Class II surface impoundments and groundwater protection regulations contained in Title 27, CCR, Section 20080, et seq..

VI. PROVISIONS

A. Standard Provisions

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

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

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

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

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

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

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

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

    The causes for modification include:

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

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

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

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

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

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

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

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

ii. Controls any pollutant limited in the Order.

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

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

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

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

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

i. Safeguard to electric power failure:

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

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

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

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

The technical report shall:

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

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

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

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

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

capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

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

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

n. For any wastewater treatment plant, 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 (530) 224-4845 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. If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and an effluent limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the need for mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

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 when developing effluent

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

f. Diazinon and Chlorpyrifos Basin Plan Amendment. Central Valley Water Board staff is developing a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. This Order may be reopened to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

g. Mixing Zone/Dilution Confirmation Study. Upon completion of the study, this Order may be reopened to add or modify dilution credits and/or mixing zones, as appropriate.

h. Dilution Credits. The Central Valley Water Board may reopen this Order, as appropriate, to modify dilution credits should the facility performance, treatment or characteristics of the discharge or receiving water change. Modification of the dilution credit may include increasing the allowed dilution credit, if appropriate.

i. Treatability Study. The Central Valley Water Board may reopen this Order, as appropriate, to modify effluent limits and/or requirements related to the operation of the microfiltration membrane system, based on the results of the treatability study.

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. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. 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 >20 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. **Chronic Toxicity Study.** The Discharger shall conduct a study to identify potential sources of chronic toxicity in the effluent and evaluate the feasibility, costs, and benefits of alternatives that will result in the best practicable treatment or control (BPTC) of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained. **Within 6 months** of the effective date of this Order the Discharger shall submit a workplan and schedule for completing the study for approval by the Executive Officer. A final report summarizing the study results shall be submitted no later than **2 years** from the effective date of this Order.

c. **Mixing Zone/Dilution Confirmation Study.** The Discharger shall perform a mixing zone/dilution confirmation field study to verify the model results of the 2010 Mixing Zone Study and 2013 Addendum. **Within one year** of the effective date of this Order the Discharger shall submit a workplan and schedule for completing the study for approval by the Executive Officer. A final report summarizing the study results shall be submitted with the Report of Waste Discharge and **no later than 180 days prior to the expiration date of this Order**.

d. **Mixing Zone Biological Assessment.** The Discharger shall conduct a biological assessment to determine the impacts of the mixing zone and shall submit a report summarizing the findings of the assessment to the Central Valley Water Board and the California Department of Fish and Wildlife (DFW) with the Report of Waste Discharge and **no later than 180 days prior date of this Order**.

e. **Treatability Study**. The Discharger shall conduct a Facility treatability study to assess the treatment potential for each discrete treatment train at the facility. The study shall assess the treatment potential for all pollutants with effluent limitations and/or reasonable potential to cause or contribute to an exceedance of a water quality objective. Design flows and operating limitations must also be included in the study for each treatment component. Seasonal effects on effluent quality, if any, must also be addressed. The study shall be prepared by certified by a California-registered civil engineer. **Within 6 months** of the effective date of this Order the Discharger shall submit a workplan and schedule for completing the study for approval by the Executive Officer. The final study report shall be submitted no later than **3 years** from the effective date of this Order.

3. Best Management Practices and Pollution Prevention

a. Salinity Evaluation and Minimization Plan. The Discharger shall prepare a salinity evaluation and minimization plan to identify and address sources of salinity from the Facility. The plan shall be completed and submitted to the Central Valley Water Board **within 9 months** of the effective date of this Order for the approval by the Executive Officer.

4. Construction, Operation and Maintenance Specifications

a. Membrane Filtration. The micro-filtration membrane system shall be operated year-round, to the maximum extent practicable.

b. Class II Surface Impoundments. Construction, operation, and maintenance specifications related to the Class II surface impoundments is regulated by WDR Order No. 5-00-114.

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

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. Compliance Schedule for Discharge Color. By **5 years from the effective date of this order** modifications and upgrades at the Facility shall be implemented as necessary in an effort to reduce the discoloration nuisance caused by the discharge within the receiving water body. The Discharger shall submit progress reports in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

Task	Date Due
i. Submit Method of Compliance Workplan/Schedule	Within 6 months after effective date of this Order
ii. Annual Progress Reports[1]	1 February, annually, after approval of work plan until final compliance
iii. Complete Modifications and Upgrades	Within 5 years after the

Task	Date Due
	effective date of this Order

[1] The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.

VII. COMPLIANCE DETERMINATION

A. Total BOD_5 and TSS Mass Loading Effluent Limitations (Sections IV.A.1.a). 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. The total annual mass loading shall be the sum of the individual calendar months. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level.

B. Total Residual Chlorine Effluent Limitations (Section IV.A.1.d). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

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

C. Mass Effluent Limitations. The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a, IV.A.1.f, and IV.A.1.g are based on the permitted average annual, average monthly, and maximum daily flows and calculated as follows:

Mass (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor)

D. 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.

E. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.e). Compliance shall be determined by calculating the sum (S), as provided in this Order, with analytical results that are reported as “non - detectable” concentrations to be considered to be zero.

ATTACHMENT A – DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of

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

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

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

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

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

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

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

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

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

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

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

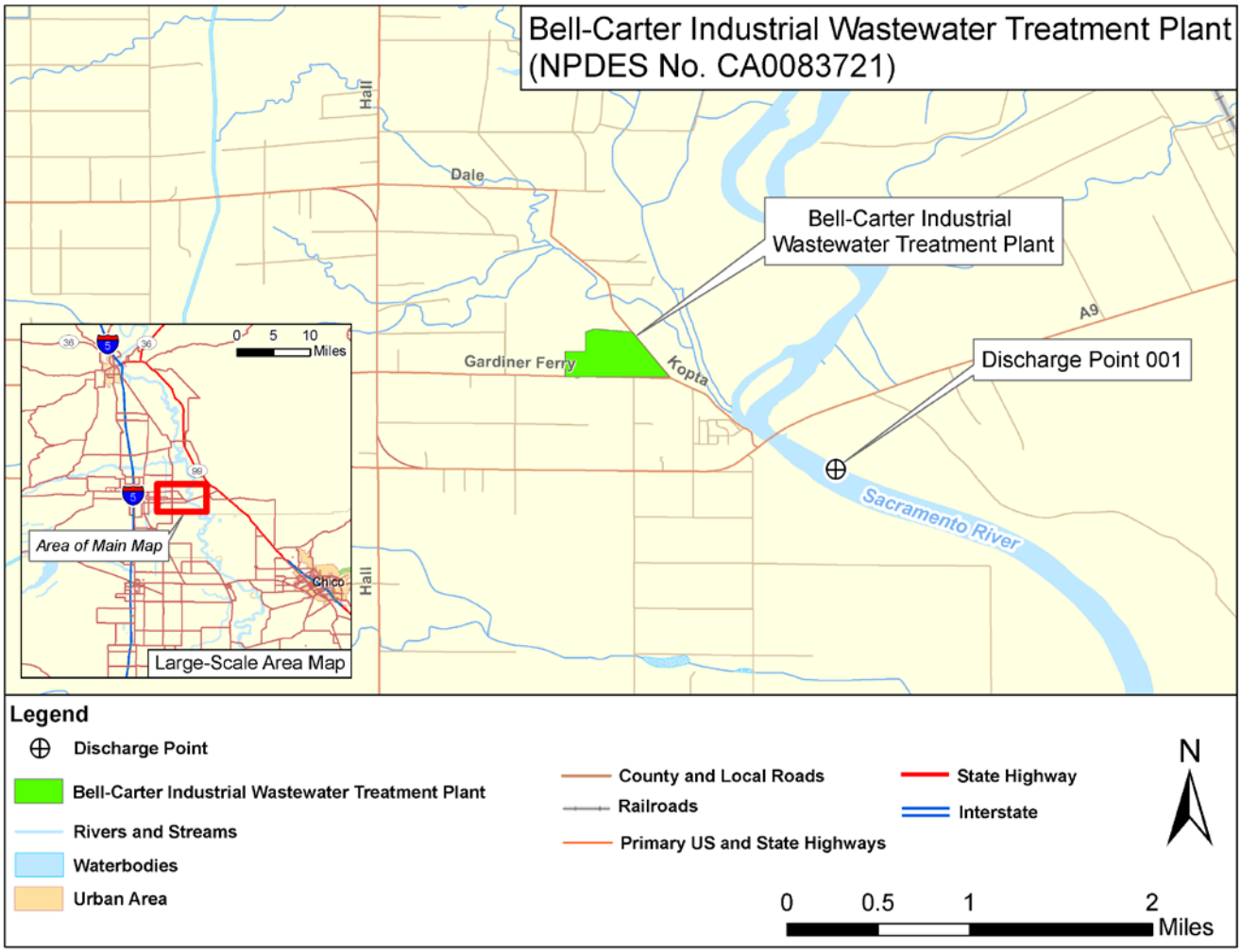
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

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

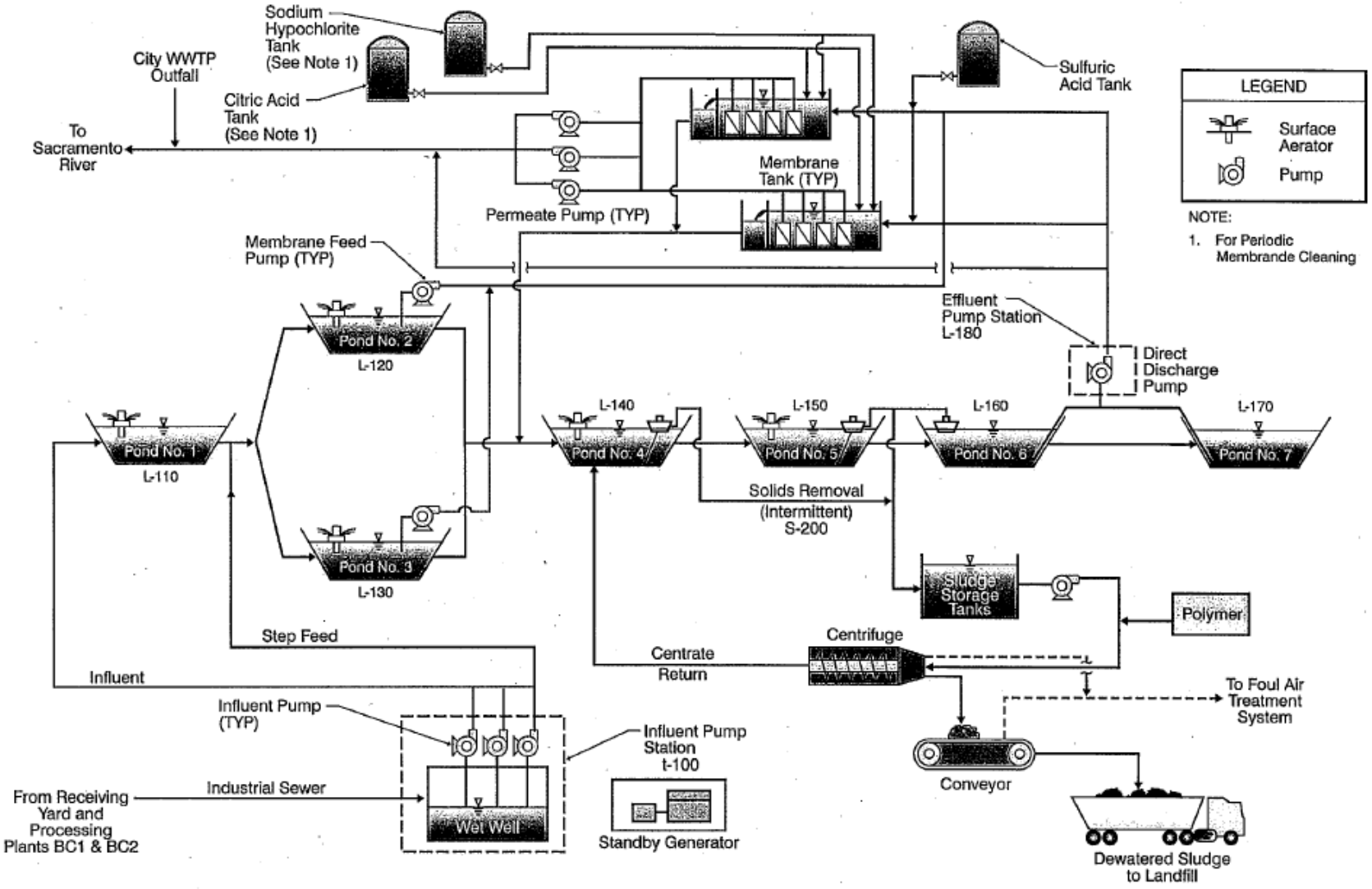
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

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

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

G. Bypass

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

5. Notice

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

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

H. Upset

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

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

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

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

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

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

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

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

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State

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

B. Signatory and Certification Requirements

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

2. All permit applications shall be signed by 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

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. 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 Department of Public Health (DPH). 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, 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 DPH, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

G. The Discharger shall 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.

H. 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	Influent liquid waste. Upstream of the discharge to the surface impoundments.
001	EFF-001	Final Blended Effluent. Downstream from the last connection through which waste can be added and upstream of the junction with the effluent from the City of Corning Wastewater Treatment Plant. Latitude: 39° 54’ 50” N, Longitude: 122° 06’ 16” W
--	INT-001	Membrane Filter Effluent. Immediately downstream from membrane filter, after permeate pump and before combining with Pond 6 or 7 flow. Latitude: 39° 54’ 52” N, Longitude: 122° 06’ 16” W
--	INT-002	Pond 6 Effluent. Immediately downstream from Pond 6 and before combining with Pond 7 or membrane filter flow. Latitude: 39° 54’ 56” N, Longitude: 122° 06’ 11” W
--	INT-003	Pond 7 Effluent. Immediately downstream of Pond 7 and before combining with Pond 6 or membrane filter flow. Latitude: 39° 55’ 00” N, Longitude: 122° 06’ 12” W
--	RSW-001	In the Sacramento River immediately upstream of Discharge Point 001.[1]
--	RSW-002	In the Sacramento River 75 feet downstream from Discharge Point 001.[1]
--	PRD-001	Raw product delivered to processing each month, either as fresh fruit or from storage.
--	PREC-001	Rain gauge located at the Receiving Yard.
--	SW-001	Storm water discharge to Class II Surface Impoundments.

[1]Monitoring location to be consistent with City of Corning (NPDES No. CA0004995) and may be changed with approval of the Executive Officer.

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the surface impoundments 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	--

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Calculated Influent Flow[3]	MGD	Calculated	Daily	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	2/Month	[2]
pH	standard units	Grab	1/Week	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	2/Month	[2]
Non-Conventional Pollutants				
Chemical Oxygen Demand	mg/L	24-hr Composite[1]	1/Month	[2]
Chloride	mg/L	24-hr Composite[1]	1/Month	[2]
Electrical Conductivity @ 25°C	µmhos/cm	24-hr Composite[1]	1/Week	[2]
Iron, Total Recoverable	µg/L	24-hr Composite[1]	1/Month	[2]
Sodium, Total	mg/L	24-hr Composite[1]	1/Quarter	[2]
Sulfate	mg/L	24-hr Composite[1]	1/Quarter	[2]
Total Dissolved Solids	mg/L	24-hr Composite[1]	1/Month	[2]

[1] 24-hour flow proportional or time-weighted composite.

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

[3] The calculated influent flow shall be the influent flow less the daily stormwater flow.

IV. INTERNAL FLOW MONITORING REQUIREMENTS

A. Monitoring Locations INT-001, INT-002, AND INT-003

1. The Discharger shall monitor internal flows at Monitoring Locations INT-001, INT-002, and INT-003 as follows:

Table E-3. Internal Flow Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--

V. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor the effluent at Monitoring Location EFF-001 during periods of discharge, as follows. If the Zenon flow (INT-001), as a percent of the final blended effluent flow with Pond 6 (INT-002) or Pond 7 (INT-003), changes by 20% or more, then the combined flow will be resampled and analyzed for the weekly and monthly constituents listed in the Monitoring and Reporting program. The weekly and monthly constituents are required to be monitored every time the percentage of Zenon flow changes by 20% or more as discussed above, but the monthly constituents are not required to be monitored more frequently than twice per month. Additionally, if more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-4. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	1/Week	[2]
	lbs/day	Calculate	1/Week	--
pH	standard units	Grab	1/Day[3,4,14]	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/Week	[2]
	lbs/day	Calculate	1/Week	--
Priority Pollutants				
Benzo(a)pyrene	µg/L	Grab	1/Quarter[5]	[2,6]
Bis (2-ethylhexyl) phthalate	µg/L	Grab	1/Quarter[5]	[2,6,7]
Copper, Total Recoverable	µg/L	Grab	1/Month	[2,6]
Mercury, Total Recoverable	µg/L	Grab	1/Year	[2,6,8]
Pentachlorophenol	µg/L	Grab	1/Quarter[5]	[2,6]
Zinc, Total Recoverable	µg/L	Grab	1/Month	[2,6]
Priority Pollutants and Other Constituents of Concern	See Section IX.A	See Section IX.A	See Section IX.A	[2,6]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	Grab	1/Quarter	[2]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[3,9]	[2]
	lbs/day	Calculate	1/Week	--
Chloride	mg/L	Grab	1/Week	[2]
	lbs/day	Calculate	1/Week	--
Chlorine, Total Residual	mg/L	Grab	1/Day[10]	[2]
Chlorpyrifos	µg/L	Grab	1/Year	[2,11]
Color	color units	Grab	1/Month	[2]
Diazinon	µg/L	Grab	1/Year	[2,11]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[2]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month[12]	[2]
Iron, Total Recoverable	µg/L	Grab	1/Month	[2]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter	[2]
Settleable Solids	ml/L	Grab	1/Week	[2]
Sulfate	mg/L	Grab	1/Month	[2]
Standard Minerals[13]	mg/L	Grab	1/Year	[2]
Temperature	°C	Grab	1/Week[3,4]	[2]
Total Dissolved Solids	mg/L	Grab	1/Week	[2]
	lbs/day	Calculate	1/Week	--

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] 24-hour flow proportional or time-weighted composite.

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

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

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

[5] Monitoring shall be conducted quarterly for the first 2 years of the permit term.

[6] 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).

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

[8] 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.

[9] Concurrent with whole effluent toxicity monitoring.

[10] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L. Total chlorine residual monitoring is required when chlorine or chlorine-containing products are used in the treatment process (i.e. Zenon filter backflush). If backflushing does not occur in a given day, this should be noted in the Discharger's monitoring report and a total chlorine residual sample may be omitted for that day only.

[11] U.S. EPA Method 625M, Method 8141, or equivalent. Minimum reporting limits: <100 ng/L diazinon; <15 ng/L chlorpyrifos.

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

[13] Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, sulfate, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).

[14] Alternative means of monitoring may be implemented (e.g. automatic data logger) when Facility is not fully staffed (i.e. weekends, holidays).

VI. 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 monthly acute toxicity testing, concurrent with effluent ammonia sampling.

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

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

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

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

1. *Monitoring Frequency –* The Discharger shall perform annual three species chronic toxicity testing.

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

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

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

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

   b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); 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 -* The chronic toxicity testing shall be performed using the dilution series identified in Table E-5, below. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-5, 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-5. Chronic Toxicity Testing Dilution Series

Sample	Dilutions[a] (%)							Control
	100	**50**	**25**	**12.5**	**6.25**	**3.125**	**1.562**	
% Effluent	100	50	25	12.5	6.25	3.125	1.562	0
% Control Water	0	50	75	87.5	93.75	96.875	98.438	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 within 30 days following completion of the test, and shall contain, at minimum:

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

   b. The statistical methods used to calculate endpoints;

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

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

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

   Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring 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 monthly discharger self-monitoring reports and reported as percent survival.

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

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

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

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

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

VII. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

IX. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor the Sacramento River at Monitoring Location RSW-001 as follows:

Table E-6. Receiving Water Monitoring Requirements – Monitoring Location RSW-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/Week	[1]
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month	[1,2]
Copper, Dissolved	µg/L	Grab	1/Month	
Zinc, Total Recoverable	µg/L	Grab	1/Month	[1,2]
Zinc, Dissolved	µg/L	Grab	1/Month	
Priority Pollutants and Other Constituents of Concern	See Section IX.A	See Section IX.A	See Section IX.A	[1,2]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Year	[1]
Chloride	mg/L	Grab	1/Month	[1]
Dissolved Oxygen	mg/L	Grab	1/Month	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month	[1]
Iron, Total Recoverable	µg/L	Grab	1/Month	[1]
Sulfate	mg/L	Grab	1/Month	
Temperature	°F (°C)	Grab	1/Week	[1]
Total Dissolved Solids	mg/L	Grab	1/Month	[1]
Turbidity	NTU	Grab	1/Week	[1]

[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] 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).

2. The Discharger shall monitor the Sacramento River at Monitoring Location RSW-002 as follows:

Table E-7. Receiving Water Monitoring Requirements – Monitoring Location RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/Week	[1]
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month	[1,2]
Zinc, Total Recoverable	µg/L	Grab	1/Month	[1,2]
Non-Conventional Pollutants				

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month	[1]
Chloride	mg/L	Grab	1/Month	[1]
Dissolved Oxygen	mg/L	Grab	1/Month	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month	[1]
Iron, Total Recoverable	µg/L	Grab	1/Month	[1]
Sulfate	mg/L	Grab	1/Month	
Temperature	°F (°C)	Grab	1/Week	[1]
Total Dissolved Solids	mg/L	Grab	1/Month	[1]
Turbidity	NTU	Grab	1/Week	[1]

[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] 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).

3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-002. Attention shall be given to the presence or absence of:

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

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

X. OTHER MONITORING REQUIREMENTS

A. Effluent and Receiving Water Characterization

1. **Quarterly Monitoring.** Quarterly priority pollutant samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) and analyzed for the constituents listed in Table E-8, below. Quarterly monitoring shall be conducted during the third year of the permit term (four consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Central Valley Water Board with the monthly self-monitoring reports. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water. In order to ensure a representative sample of the effluent is obtained, the Discharger shall maintain a final blended effluent flow ratio (i.e. ratio of flows from INT-001, INT-002, and INT-003) consistent with the average final blended effluent flow ratio from the first two years of the permit term.

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-8, below.

Table E-8. Effluent and Receiving Water Characterization Monitoring

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
1,1-Dichloroethane	µg/L	Grab	1
1,1-Dichloroethene	µg/L	Grab	0.5
1,1,1-Trichloroethane	µg/L	Grab	2
1,1,2-Trichloroethane	µg/L	Grab	0.5
1,1,2,2-Tetrachloroethane	µg/L	Grab	0.5
1,2-Dichlorobenzene	µg/L	Grab	2
1,2-Dichloroethane	µg/L	Grab	0.5
cis-1,2-Dichloroethene	µg/L	Grab	--
1,2-Dichloropropane	µg/L	Grab	0.5
1,2,4-Trichlorobenzene	µg/L	Grab	1
1,3-Dichlorobenzene	µg/L	Grab	2
1,3-Dichloropropene	µg/L	Grab	0.5
1,4-Dichlorobenzene	µg/L	Grab	2
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	2
Bromomethane	µg/L	Grab	2
Carbon tetrachloride	µg/L	Grab	0.5
Chlorobenzene (mono chlorobenzene)	µg/L	Grab	2
Chloroethane	µg/L	Grab	2
2- Chloroethyl vinyl ether	µg/L	Grab	1
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
Naphthalene	µg/L	Grab	10
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	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	Grab	--
Styrene	µg/L	Grab	--
Xylenes	µg/L	Grab	--
1,2-Benzanthracene	µg/L	Grab	5
1,2-Diphenylhydrazine	µg/L	Grab	1
2-Chlorophenol	µg/L	Grab	5
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
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)[2]	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[2,3]	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
Diuron	µg/L	Grab	--
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[2]	µg/L	Grab	1
Phenanthrene	µg/L	Grab	5
Phenol	µg/L	Grab	1
Pyrene	µg/L	Grab	10
Aluminum[2]	µg/L	24-hr Composite[4]	--
Antimony	µg/L	24-hr Composite[4]	5
Arsenic	µg/L	24-hr Composite[4]	10
Asbestos	µg/L	24-hr Composite[4]	--
Barium	µg/L	24-hr Composite[4]	--
Beryllium	µg/L	24-hr Composite[4]	2
Cadmium	µg/L	24-hr Composite[4]	0.5
Chromium (III)	µg/L	24-hr Composite[4]	50

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Chromium (VI)	µg/L	24-hr Composite[4]	10
Copper[2]	µg/L	24-hr Composite[4]	2
Cyanide	µg/L	24-hr Composite[4]	5
Fluoride	µg/L	24-hr Composite[4]	--
Iron[2]	µg/L	24-hr Composite[4]	--
Lead	µg/L	24-hr Composite[4]	0.5
Mercury[2]	µg/L	24-hr Composite[4]	0.5
Manganese	µg/L	24-hr Composite[4]	--
Molybdenum	µg/L	24-hr Composite[4]	--
Nickel	µg/L	24-hr Composite[4]	20
Selenium	µg/L	24-hr Composite[4]	5
Silver	µg/L	24-hr Composite[4]	1
Thallium	µg/L	24-hr Composite[4]	1
Tributyltin	µg/L	24-hr Composite[4]	--
Zinc[2]	µg/L	24-hr Composite[4]	20
4,4'-DDD	µg/L	24-hr Composite[4]	0.05
4,4'-DDE	µg/L	24-hr Composite[4]	0.05
4,4'-DDT	µg/L	24-hr Composite[4]	0.01
alpha-Endosulfan	µg/L	24-hr Composite[4]	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite[4]	0.01
Alachlor	µg/L	24-hr Composite[4]	
Aldrin	µg/L	24-hr Composite[4]	0.005
beta-Endosulfan	µg/L	24-hr Composite[4]	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite[4]	0.005
Chlordane	µg/L	24-hr Composite[4]	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite[4]	0.005
Dieldrin	µg/L	24-hr Composite[4]	0.01
Endosulfan sulfate	µg/L	24-hr Composite[4]	0.01
Endrin	µg/L	24-hr Composite[4]	0.01
Endrin Aldehyde	µg/L	24-hr Composite[4]	0.01
Heptachlor	µg/L	24-hr Composite[4]	0.01
Heptachlor Epoxide	µg/L	24-hr Composite[4]	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite[4]	0.5
PCB-1016	µg/L	24-hr Composite[4]	0.5
PCB-1221	µg/L	24-hr Composite[4]	0.5
PCB-1232	µg/L	24-hr Composite[4]	0.5
PCB-1242	µg/L	24-hr Composite[4]	0.5
PCB-1248	µg/L	24-hr Composite[4]	0.5
PCB-1254	µg/L	24-hr Composite[4]	0.5
PCB-1260	µg/L	24-hr Composite[4]	0.5
Toxaphene	µg/L	24-hr Composite[4]	--
Atrazine	µg/L	24-hr Composite[4]	--
Bentazon	µg/L	24-hr Composite[4]	--
Carbofuran	µg/L	24-hr Composite[4]	--
2,4-D	µg/L	24-hr Composite[4]	--
Dalapon	µg/L	24-hr Composite[4]	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	24-hr Composite[4]	--
Di(2-ethylhexyl)adipate	µg/L	24-hr Composite[4]	--
Dinoseb	µg/L	24-hr Composite[4]	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Diquat	µg/L	24-hr Composite[4]	--
Endothal	µg/L	24-hr Composite[4]	--
Ethylene Dibromide	µg/L	24-hr Composite[4]	--
Methoxychlor	µg/L	24-hr Composite[4]	--
Molinate (Ordram)	µg/L	24-hr Composite[4]	--
Oxamyl	µg/L	24-hr Composite[4]	--
Picloram	µg/L	24-hr Composite[4]	--
Simazine (Princep)	µg/L	24-hr Composite[4]	--
Thiobencarb	µg/L	24-hr Composite[4]	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite[4]	--
2,4,5-TP (Silvex)	µg/L	24-hr Composite[4]	--
Diazinon[2]	µg/L	24-hr Composite[4]	--
Chlorpyrifos[2]	µg/L	24-hr Composite[4]	--
Ammonia (as N)[2]	mg/L	24-hr Composite[4]	--
Boron	µg/L	24-hr Composite[4]	--
Chloride[2]	mg/L	24-hr Composite[4]	--
Diuron	µg/L	24-hr Composite[4]	--
Flow[2]	MGD	Meter	--
Hardness (as $CaCO_3$)[2]	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	24-hr Composite[4]	--
Mercury, Methyl	ng/L	Grab	--
Nitrate (as N)[2]	mg/L	24-hr Composite[4]	--
Nitrite (as N)	mg/L	24-hr Composite[4]	--
pH[2]	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	24-hr Composite[4]	--
Specific conductance (EC)[2]	µmhos/cm	24-hr Composite[4]	--
Sulfate	mg/L	24-hr Composite[4]	--
Sulfide (as S)	mg/L	24-hr Composite[4]	--
Sulfite (as SO_3)	mg/L	24-hr Composite[4]	--
Temperature[2]	^oC	Grab	--
Total Dissolved Solids (TDS)[2]	mg/L	24-hr Composite[4]	--

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 The Discharger is not require to conduct effluent or receiving water monitoring for constituents that have already been sampled in a given quarter, as required in Tables E-3, except for flow, hardness, pH, and temperature, which shall be conducted concurrently with the effluent and receiving water sampling.

3 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.

4 24-hour flow proportional or time-weighted composite.

B. Production Monitoring PRD-001

The Discharger shall monitor production as tons of raw product delivered to processing each month, either as fresh fruit or from storage. Total monthly production monitoring shall be reported monthly. Total production for the calendar year shall be reported annually, by 1 February (of the following year).

C. Rainfall and Storm Water Monitoring PREC-001, SW-001

Daily rainfall shall be monitored (inches) at monitoring location PREC-001 and reported in the monthly self-monitoring report. The monthly amount of storm water generated and discharged to the treatment ponds (gallons) shall be calculated and reported monthly.

XI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self-Monitoring Reports (SMR's)

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

Table E-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar	First day of second calendar month

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
		month	following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October 1 through 31 December	1 May 1 August 1 November 1 February of following year
1/Year	Permit effective date	1 January 1 through 31 December	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.

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

   a. **Total Calendar Annual Mass Loading BOD_5 and TSS Effluent Limitations**. The Discharger shall calculate and report the total calendar annual BOD_5 and TSS 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.

   b. **Calendar Annual Average Limitations**. For constituents with effluent limitations specified as "calendar annual average" (chloride mass, iron, and total dissolved solids mass) the Discharger shall report the calendar annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.

   c. **Mass Loading Limitations**. For BOD_5, TSS, ammonia, chloride, and total dissolved solids, the Discharger shall calculate and report the mass loading (lbs/day) in the SMR's. The mass loading shall be calculated as follows:

      Mass Loading (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34

      When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used. For annual average mass loading, the annual average flow and constituent concentration shall be used.

   d. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall calculate and report monthly in the self-monitoring report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.

   e. **Turbidity Receiving Water Limitations**. The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.18.a-e. of the Limitations and Discharge Requirements.

   f. **Temperature Receiving Water Limitations**. The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

g. **Chlorpyrifos and Diazinon Effluent Limitation**. The Discharger shall calculate and report the value of S_{AMEL} and S_{MDEL} for the effluent, using the equation in Effluent Limitations IV.A.1.e and consistent with the Compliance Determination Language in Section VII.E.

C. Discharge Monitoring Reports (DMR's) – Not Applicable

D. Other Reports

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

Table E-10. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Chronic Toxicity Study, Workplan (Special Provision VI.C.2.b)	**Within 6 months** of the effective date of this Order
Chronic Toxicity Study, Final Report (Special Provision VI.C.2.b)	**Within 2 years** of the effective date of this Order
Mixing Zone/Dilution Confirmation Study, Workplan (Special Provision VI.C.2.c)	**Within 1 year** of the effective date of this Order
Mixing Zone/Dilution Confirmation Study, Final Report (Special Provision VI.C.2.c)	**No later than 180 days prior to the expiration** date of this Order
Mixing Zone Biological Assessment, Report (Special Provision VI.C.2.d)	**No later than 180 days prior to the expiration** date of this Order
Treatability Study, Workplan (Special Provision VI.C.2.e)	**Within 6 months** of the effective date of this Order
Treatability Study, Final Report (Special Provision VI.C.2.e)	**Within 3 years** of the effective date of this Order
Compliance Schedule for Discharge Color, Workplan (Special Provision VI.C.7.a)	**Within 6 months** of the effective date of this Order
Compliance Schedule for Discharge Color, Progress Reports (Special Provision VI.C.7.a)	**1 February,** annually

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan required by Special Provisions – VI.C. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. **Within 60 days of the permit effective date**, the Discharger shall submit a report outlining reporting levels (RL's), method detection limits, and analytical methods for approval. 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 (Attachment E) provides required maximum RL's in accordance with the SIP.

4. **Annual Operations Report.** By 1 February 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

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ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet 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	5A520303002
Discharger	Bell-Carter Olive Company, Inc. and City of Corning
Name of Facility	Bell-Carter Industrial Wastewater Treatment Plant
Facility Address	Gardiner Ferry Road
	Corning, CA 96021
	Tehama County
Facility Contact, Title and Phone	Bob Asmus, Engineering Manager, (530) 528-4890
Authorized Person to Sign and Submit Reports	Bob Asmus, Engineering Manager, (530) 528-4890
Mailing Address	1012 Second Street, Corning, CA 96021
Billing Address	Same as Mailing Address
Type of Facility	Industrial (SIC code 2033)
Major or Minor Facility	Minor
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	1.4 million gallons per day (MGD) as a daily maximum, 0.95 MGD as a monthly average, and 0.75 MGD as an annual average
Facility Design Flow	0.75 MGD as an annual average
Watershed	Sacramento-Lower Thomes
Receiving Water	Sacramento River
Receiving Water Type	Inland surface water

A. Bell-Carter Olive Company, Inc. is the owner and operator of the Bell-Carter Industrial Wastewater Treatment Plant (Facility), an industrial wastewater treatment facility. The City of Corning owns the property at Gardiner Ferry Road on which the Facility is located. Together Bell-Carter Olive Company, Inc. and the City of Corning are hereinafter referred to as the Discharger.

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

B. The Facility discharges wastewater to the Sacramento River, a water of the United States, within the Sacramento-Thomes watershed. The Discharger was previously regulated by WDR Order R5-2007-0166 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0083721 adopted on 6 December 2007. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order. 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 18 July 2012. The application was deemed complete on 3 October 2012. A site visit was conducted on 17 April 2013, to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

II. FACILITY DESCRIPTION

The Facility receives process wastewater from two Bell-Carter Olive Company (Bell-Carter) owned and operated olive processing facilities: Plant 1 and Plant 2. The Facility, including the collection system that conveys Plant 1 and Plant 2 process wastewater to the Facility is located in Corning, CA. The Facility is adjacent to the City of Corning's (City) Wastewater Treatment Plant (WWTP) and is located on property owned by the City (Assessor's Parcel Number 75-300-02).

Plant 1 Process Wastewater Description

At Plant 1 olives are received, processed, canned, and packaged for distribution. Wastewater from Plant 1 that is collected and sent to the Facility include: storage brines, flume brines, processing lye, pitting wastes, wash-water, blowdown from the retort water recycling system, and storm water. The retort water recycling system at Plant 1 was installed during the term of past permit cycle and therefore blowdown wastewater associated with the recycling system is a new waste contribution to the Facility from Plant 1 since the last permit adoption.

Plant 2 Process Wastewater Description

Operations at Plant 2 are similar to those of Plant 1, except that olives are sliced rather than whole and no raw olives are processed at Plant 2. Since no raw olives are processed at Plant 2, processing lye wastewater is not produced. Wastewater from Plant 2 that is collected and sent to the Facility include: storage brines, flume brines, pitting wastes, wash-water, and storm water. Plant 2 process wastewater is also pretreated with a Dissolved Air Flotation (DAF) unit for BOD_5 reduction prior to discharge to the Facility. Plant 2 does not have a retort water recycling system and currently discharges retort and continuous cooker wastewater to an on-site leach field. The retort waste discharge to the land is regulated separately by WDR Order No. 94-195.

Collection System

Process wastewater from Plant 1 and Plant 2 is conveyed to the Facility through a an approximately 6 mile industrial sewer. The City of Corning owns the collection system and Bell-Carter operates and maintains the collection system.

Industrial Wastewater Treatment Plant

Process wastewater from Plant 1 and Plant 2 are discharged to 27 acres of Class II surface impoundments located at the Facility. The wastewater is classified as a liquid designated waste and the impoundments are double-lined in accordance with Title 27 of the California Code of Regulations. The operational and construction factors associated with the Facility's Class II

surface impoundments for groundwater protection are regulated by WDR Order 5-00-114. The wastewater treatment plant consists of an influent pump station, three aeration ponds, two settling ponds, and two effluent storage ponds (i.e., double-lined Class II surface impoundments), and an ultrafiltration system. Bell Carter discharges Facility effluent to the Sacramento River through a multiport diffuser outfall that is also used as the City's WWTP effluent outfall. The outfall is owned by the City.

Regulatory Background

From the late 1980s to 1995, Bell-Carter discharged pretreated olive processing wastewater to the City WWTP and did not discharge directly to the Sacramento River. Process wastewater flows from Plant 1 and Plant 2 to the Class II surface impoundments at the Facility were limited to 151 million gallons (mg) per year and pretreated olive processing wastewater discharge to the City WWTP was limited to 0.38 mgd. The City WWTP discharged treated municipal and industrial effluent to the Sacramento River and effluent quality was subject to secondary treatment standards for biological oxygen demand (BOD_5) and total suspended solids (TSS) (i.e., monthly average: 30 mg/L, weekly average: 45 mg/L, daily maximum: 90 mg/L).

In 1993 Bell-Carter requested an increase in permitted flows to the Facility's class II surface impoundments from 151 mg per year to 255 mg per year and an increase in discharge of pretreated olive processing wastewater to the City WWTP from 0.38 mgd to 0.75 mgd. Environmental review was conducted and in September 1993 the Corning City Council certified the Environmental Impact Report (EIR) for the proposed expansion. The final EIR required mitigation measures at the Facility ponds for project approval. The mitigation measures included an increase to the aeration capacity of the ponds to provide additional treatment for the olive processing wastewater prior to discharge to the City's WWTP.

The Discharger was issued an NPDES permit for the first time in 1995 (Order No. 95-113). Order No. 95-113 permitted a direct discharge of 0.4 mgd (monthly average) to the Sacramento River, while the facility continued to discharge 0.35 mgd pretreated olive processing wastewater to the City WWTP. Bell-Carter's effluent BOD_5 and TSS limitations were limited, in part, to a monthly average and daily maximum of 120 mg/L and 200 mg/L, respectively. These effluent limitations were considered interim limits that would be revised downward when treatability studies were completed and additional treatment was implemented. These limitations applied only to the surface water discharge and not the discharge to the City WWTP.

In the late 1990s Bell-Carter installed a dissolved-air floatation (DAF) system and increased aeration which resulted in a decrease of BOD_5 and TSS concentrations. Subsequently, when the Discharger's NPDES permit was renewed in 2000, Order No. 5-00-113 imposed more stringent BOD_5 and TSS monthly average and daily maximum effluent limits (BOD_5 100/150, TSS 100/200) for the surface water discharge. The direct discharge to the Sacramento River was limited to 0.4 mgd as an annual average; however, the Order established a monthly average and daily maximum flow limit to the river of 0.6 and 1.0 mgd, respectively. [Bell-Carter had requested that the daily maximum effluent flow limit be increased to allow more flexibility in pond level management]. The maximum daily limit of 1.0 mgd was considered the "practical physical limit" for Bell-Carter's direct discharge to the City's 2.0 mgd capacity outfall (the City WWTP's permitted flow limit at the time was 1.38 mgd). At the time of issuance of Order 5-00-113, the City's WWTP annual average effluent flow was approximately 1.0 mgd.

In early 2000 Bell-Carter constructed and began operation of a micro-filtration system that, in conjunction with the ponds, was capable of treating its entire waste stream, without relying on the City WWTP. Subsequently, in December 2003 Bell-Carter requested that the Central Valley Water Board increase its flow limitation for direct discharge to the Sacramento River from 0.4 mgd to 0.75 mgd. The increase in flow would be offset by the decrease in flow (i.e., elimination) of 0.35 mgd to the City WWTP, resulting in a no net increase in flow to the Sacramento River. The

request was reviewed and a Special Order (R5-2004-0074) amending the Discharger's current NPDES permit (Order No. 5-00-113) flow limits was adopted by the Central Valley Water Board in June 2004. The amendment established effluent flow limits of 0.95 mgd (monthly average), 0.75 mgd (annual average), and 1.4 mgd (daily maximum). The basis for the monthly average and maximum daily limit is not explicitly clear in the Special Order, but it appears that the net flow increase value of 0.35 mgd was added to the existing monthly average limit of 0.6 mgd to achieve 0.95 mgd and the daily maximum limit of 1.0 mgd increased by 0.4 mgd to 1.4 mgd. The amendment was limited to the flow increase and did not take in consideration the net increase in solids loading from the additional 0.35 mgd of effluent now being treated to Bell-Carter existing BOD_5 and TSS effluent limits, which were less stringent than the City's secondary treatment standards. The amendment stated, however, that water quality-based effluent limits and other matters related to the increase would be addressed when Order No. 5-00-113 was renewed in a few years. Upon adoption of the Special Order R5-2004-0074, Bell-Carter ceased discharge to the City WWTP and commenced direct discharge all Facility-treated wastewater to the Sacramento River. In addition, as a result of the installation of the micro-filtration unit, use of the Facility DAF unit was discontinued (the DAF unit is still located at the treatment plant but is currently off-line) and a new DAF was purchased and installed to serve as pretreatment for Plant 2 process wastewater.

In December 2007, the NPDES permit was renewed and WDR Order No. R5-2007-0166 was adopted. Order No. R5-2007-0166 retained the flow limits established in Special Order R5-2004-0074. The 2007 permit also retained the existing concentration-based BOD_5 and TSS effluent limits from Order No. 5-00-113.

A. Description of Wastewater and Solids Treatment and Controls

The treatment system at the Facility consists of an influent pump station, influent metering and sampling equipment, a two-stage extended aeration pond system (Class II Surface Impoundments), followed by an ultrafiltration membrane solids separation process.

The extended aeration and sedimentation processes along with wastewater storage occur in seven lined ponds (Class II Surface Impoundments). The operational and construction factors associated with the Facility's Class II surface impoundments for groundwater protection are regulated by WDR Order 5-00-114. Ponds Nos. 1, 2, and 3 serve as extended aeration. Currently the Facility uses floating axial aerators and downdraft mixers to keep the ponds mixed. Ponds Nos. 4 and 5 are polishing ponds and allow for sedimentation of solids and further reduction of waste constituents. Ponds Nos. 6 and 7 are used primarily for effluent storage. Historically, effluent has been discharged to the receiving water from Pond Nos. 6, 7, or both simultaneously. Effluent discharged to surface water directly from Pond No. 6 and 7 does not receive treatment from the ultra-filtration membrane unit. Beginning with the adoption of this Order, however, the Discharger has proposed to operate the Facility such that discharge will only occur out of Pond No. 7 (Pond No. 6 will flow in series to Pond No. 7). Discharge from Pond No. 6 would only occur in the unlikely event that discharge from Pond No. 7 was not possible.

During the term of the past permit cycle, the ultrafiltration membrane system was used as needed and not used year-round. When the filter membrane is in operation (long-term operation proves to be most reliable when the unit is operated at approximately 0.60 mgd), flow is pumped from Pond Nos. 2 and 3 simultaneously, allowing for complete filtration of the suspended solids. Flow can also be introduced to the filter membrane unit directly from Pond Nos. 4, 5, 6, or 7 (or any combination of these) but flow is typically filtered directly from Pond Nos. 2 and 3. Membrane-filtered effluent may be discharged to the receiving water directly from the filtration system. Membrane-filtered effluent may also be combined with Ponds 6 effluent and/or Pond No. 7 effluent prior to discharge to the receiving water. Backwash

wastewater from the ultrafiltration membrane system is discharged back to Pond Nos. 4 and 5.

The design average annual flow of the treatment system is 0.75 MGD and the hydraulic capacity is 2.0 MGD. The outfall capacity is inversely related to the river stage, or water surface, within the receiving water. During dry weather conditions when the river level is low, the outfall capacity is at its maximum: 3.8 mgd. During high river flow conditions, the outfall capacity is limited to 2.0 mgd. To accommodate the City WWTP's firm capacity needs, the City can restrict the amount of flow that Bell-Carter is allowed to discharge. To alleviate concerns associated with the potential limitation by the City for effluent discharge, Bell-Carter strives to maintain ample available storage within the pond system at all times.

Solids generated in the aerobic treatment process and the ultrafiltration system (i.e., membrane waste solids) are removed from the ponds periodically by the use of a floating dredge. Solids are transferred to sludge storage tanks prior to dewatering. Solids are dewatered with a centrifuge. Liquid waste from the centrifuge (centrate) is returned to the pond system at Pond No. 4. Dewatered solids are transferred to storage bins via a covered shaftless screw conveyor, and are stored in bins. The solids storage bins are removed from the site daily (when the ponds are being dredged), and the solids are trucked to a landfill. The sludge weight hauled from the site is approximately 1,000 to 1,500 tons (dry weight) per year. To minimize the effect of odors at the solids handling facility, a carbon adsorption unit was installed to treat foul air from the dewatering equipment in March 2011.

Bell-Carter collects storm water from the Facility, which is also discharged to the treatment ponds. The volume of storm water and infiltration discharged to the treatment ponds is not included in the 255 million gallons per year flow limit. The Report of Waste Discharge states the cumulative annual rainfall totals for the Corning area are nearly 21 inches per year and average annual storm water discharge to the Facility ponds is 19.7 million gallons.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 28, T24N, R2W, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated industrial wastewater is discharged at Discharge Point 001 to the Sacramento River, a water of the United States at a point latitude 39° 54' 24" N and longitude 122° 5' 13" W.
3. The Facility discharges to the Sacramento River via a multiport diffuser. The City of Corning owns the diffuser from which both Bell-Carter Olive Company, Inc. and the City of Corning Wastewater Treatment Plant (WWTP) discharge. During periods of high rainfall or river flows, the City of Corning restricts the amount of flow that the Facility is allowed to discharge through the outfall.

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

Effluent limitations contained in Order R5-2007-0166 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2007-0166 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		Monitoring Data (January 2008 – February 2014)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Flow	MGD	0.75[1]/0.95	1.4	0.70[8]/0.94	1.4
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	100	150	211	632
	lbs/day	792	1,168	1,587	5,276
	lbs	[2]	--	--	--
Total Suspended Solids	mg/L	100	200	78	129
	lbs/day	792	1,168	622	939
	lbs	[2]	--	--	--
Chlorine, Total Residual	mg/L	--	0.02	--	<0.01
Settleable Solids	ml/L	0.1	0.2	0.1	0.4
Total Dissolved Solids	lbs/day	59,800[4]	79,800	35,267[8]	64,293
Chlorides	lbs/day	20,900[4]	27,900	8,730[8]	19,052
pH	standard units	--	6.0 – 9.5	--	7.22 – 9.18
Ammonia	mg/L	8.2	24.0	6.79	14.4
Acute Toxicity	% Survival	--	70[5]/90[6]	--	50[7]

1 The annual average discharge flow shall not exceed 0.75 MGD.
2 The annual average BOD_5 mass limitation is production based. The limitation is 2.39 lbs BOD_5 per 1,000 lbs raw material.
3 The annual average BOD_5 mass limitation is production based. The limitation is 4.44 lbs TSS per 1,000 lbs raw material.
4 Applied as an annual average effluent limitation.
5 Survival of aquatic organisms in 96-hour bioassays shall be no less than 70%.
6 The median for any three or more consecutive bioassays is 90%.
7 Represents the minimum observed percent survival.
8 Maximum annual average.

In addition, the Report of Waste Discharge describes the effluent discharge directly to the outfall line to the Sacramento River as follows:

Average Flow:	0.646 mgd
Average Temperature:	62.1 °F [44°F – 85°F range]
pH range:	7.2 – 9.2 s.u.
Average Color:	570 units
Average Conductivity @ 25°C:	7,764 µmhos/cm
Maximum Conductivity @ 25°C:	12,750 µmhos/cm
Average BOD_5:	34 mg/L, 201 lbs/day
Average TSS:	29 mg/L, 173 lbs/day
Average Ammonia:	2.0 mg/L

D. Compliance Summary

1. The Central Valley Water Board received a complaint from a fisherman on 22 June 2010 regarding a “dark substance” in the Sacramento River near the Facility outfall. Central Valley Water Board staff determined the dark substance to be the Discharger’s effluent.

2. The Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2011-0598 on 15 November 2011 which proposed to assess an administrative civil

liability of $18,000 against the Discharger for effluent limitation violations for settleable solids and 5-day biochemical oxygen demand (BOD_5) from 1 July 2010 to 30 April 2011. The Discharger paid the mandatory minimum penalty of $18,000.

3. A compliance evaluation inspection (CEI) was performed on 16 January 2013. Major findings from the inspection include the following:

   a. The Discharger monitored influent BOD_5 and total suspended solids (TSS) and effluent color and iron more frequently than was reported. In addition, the electronic self-monitoring reports (eSMR's) and SMR's contained contradicting values and there were several transcription errors for constituent results and dates.

   b. Bench sheets for in-house sampling were inadequate to determine if pH was being analyzed within the required holding time.

4. The Central Valley Water Board received odor complaints in August of 2013. Investigation by Central Valley Water Board staff revealed that one of the pond liners was being repaired and that water levels in the pond had been reduced significantly. The reduction in water level exposed the sludge deposits on the pond bottom and created a nuisance odor. The Discharger finished repairing the pond liner, refilled the pond, and the odor subsided.

5. The Central Valley Water Board issued ACL Complaint No. R5-2013-0547 on 6 September 2013 which proposed to assess an administrative civil liability of $12,000 against the Discharger for effluent limitation violations for BOD_5 from 1 January 2013 to 31 January 2013. The Discharger paid the mandatory minimum penalty of $12,000.

6. The Central Valley Water Board issued a Notice of Violation (NOV) on 25 March 2014 for an overflow of the Discharger's industrial wastewater collection system. The total volume of the spill was 2700 gallons, with approximately 1800 gallons of wastewater recovered whereas 900 gallons spilled into a nearby storm drain inlet.

7. The Central Valley Water Board received complaints in April 2014 regarding the condition/appearance of the receiving water in the vicinity of the discharge. The complainant stated the receiving water had a black sheen and smelled acidic. Central Valley Water Board staff performed a site visit and collected samples of the effluent; ammonia concentrations were relatively high and further investigation revealed high ammonia levels in the lower ponds of the treatment facility. This investigation led to the NOV for ammonia effluent limit violations as described in item 9 below.

8. The Central Valley Water Board received odor complaints in April 2014. Upon investigating the matter, Central Valley Water Board staff learned that the Discharger was in the process of replacing multiple aerators in the lower ponds. The Discharger explained that the aerator replacement project would be complete very soon and the odors would be significantly reduced; no further odor complaints were received.

9. The Central Valley Water Board issued a Notice of Violation (NOV) on 16 September 2014 for effluent limit violations for ammonia and acute toxicity from 2 April 2014 to 30 June 2014.

E. Planned Changes

The Discharger has not proposed any changes for the Facility.

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, 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 River are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Sacramento River (Shasta Dam to Colusa Basin Drain)	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial service supply (IND); industrial power supply (POW); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); wildlife habitat (WILD); and navigation (NAV).

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 Discharger captures and treats all storm water that falls on-site. Therefore, coverage under the State Water Board Water Quality Order 97-03-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities is not required.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011 U.S. EPA gave final approval to California's 2008-2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water*

quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." The listing for the Sacramento River from Red Bluff to Knights Landing includes DDT, dieldrin, mercury, polychlorinated biphenyls (PCBs), 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 River

Pollutant	Potential Sources	TMDL Completion[1]
DDT	Agriculture	(2021)
Dieldrin	Agriculture	(2021)
Mercury	Resource Extraction	(2021)
PCBs	Source Unknown	(2021)
Unknown Toxicity	Source Unknown	(2019)

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

In 2007, the Central Valley Water Board adopted an amendment to the Basin Plan that addressed impairments within the Sacramento River and Feather River Basins by promulgating a water quality objective for diazinon and chlorpyrifos as well as an implementation program designed to ensure compliance with the new water quality objective. Per this implementation program, all NPDES permits for discharges (both direct and indirect) to the Sacramento or Feather Rivers must contain an effluent limit equivalent to the diazinon and chlorpyrifos water quality objective. This Order requires the Discharger to monitor the effluent for diazinon and chlorpyrifos, and includes effluent limitations for diazinon and chlorpyrifos.

3. The 303(d) listings and TMDL's have been considered in the development of the Order. Monitoring requirements for each pollutant of concern is described in section IV and IX of Attachment E.

E. Other Plans, Policies and Regulations

1. The Facility is also regulated as a Class II Surface Impoundment facility under Title 27, California Code of Regulations (CCR). The Waste Discharge Requirements (WDR Order No. 5-00-114) for the Class II Surface Impoundments pertain only to operational factors associated with the Class II surface impoundments and groundwater protection regulations contained in Title 27, CCR, Section 20080, et seq.

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. section 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. section 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

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

A. Discharge Prohibitions

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

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at 40 C.F.R. section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define "bypass" as

the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

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

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

5. **Prohibition III.E (No discharges of brine-curing and olive processing wastewater to the Class II Surface Impoundments in excess of 255 million gallons per year).** This prohibition is retained from Order R5-2007-0166 and is included to ensure that adequate capacity is available within the Class II Surface Impoundments. In addition, the final Environmental Impact Report (EIR) dated August 1993 states that the basis for the 1993 expansion was a proposed annual flow of 255 million gallons per year. Any proposed increase in the flow of olive processing wastewater to the industrial treatment ponds would require modification of the EIR. The Discharger collects storm water from the Facility, which is also discharged to the Class II Surface Impoundments. The volume of storm water and infiltration discharged to the treatment ponds is not included in the 255 million gallons per year flow limit.

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 Effluent Limitations Guidelines and Standards for the Canned and Preserved Fruits Subcategory of the Canned and Preserved Fruits and Vegetables Processing Point Source Category in 40 C.F.R. part 407, subpart F and 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. BOD_5, TSS, and pH. U.S. EPA's Effluent Limitations Guidelines and Standards for the Canned and Preserved Fruits Subcategory of the Canned and Preserved Fruits and Vegetables Processing Point Source Category in 40 C.F.R. part 407, subpart F established ELG's applicable to discharges resulting from the processing of olives. The ELG's at 40 C.F.R. section 407.62 include the following effluent limitations representing the degree of effluent reduction attainable by the application of BPT and BCT for BOD_5 and TSS.

Table F-5. Effluent Limitations Guidelines for BOD_5 and TSS

Parameter	Effluent Limitations (lbs/1,000 lbs raw material)		
	Daily Maximum	30-Day Average	Annual Average
BOD_5	5.44	3.34	2.39
TSS	9.79	6.92	4.44

Order R5-2007-0166 included "rolling" effluent limitations for BOD_5 and TSS based on the ELG's and annual production. 40 C.F.R. section 122.45 requires that limits based on production to be based upon a reasonable measure of actual production. 40 C.F.R. section 407.61(x) defines annual average as "*the maximum allowable discharge of BOD5 or TSS as calculated by multiplying the total mass (kkg or 1000 lb) of each raw commodity processed for the entire processing season or calendar year by the applicable annual average limitation*." Consistent with 40 C.F.R. sections 122.45 and 407.61(x), this Order includes fixed annual average, average monthly, and maximum daily effluent limitations for BOD_5 and TSS based on a reasonable measure of the actual production for the Facility and the applicable limitation from the ELG.

b. pH. The ELG's at 40 C.F.R. section 407.62(c) requires that the pH be maintained within the range of 6.0 to 9.5 at all times. Effluent limitations for pH in this Order are based on the requirements found in 40 C.F.R. section 407.62(c).

c. Flow. The design average annual flow of the Facility is 0.75 MGD. Consistent with Order R5-2007-0166, this Order includes an annual average effluent limitation for flow of 0.75 MGD, an AMEL of 0.95 MGD, and an MDEL of 1.4 MGD.

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table F-6. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Annual Maximum	Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	0.75[3]	0.95	1.4	--	--
Conventional Pollutants						
BOD_5	lbs/day		932[2]	1,518[2]	--	--
	lbs/year	320,000[1]	--	--	--	--
pH	s.u.		--	--	6.0[2]	9.5
TSS	lbs/day		1,931[2]	2,732[2]	--	--
	lbs/year	600,000[1]	--	--	--	--

1 For a calendar year.
2 More stringent WQBEL's are applicable to the discharge and are included in this Order, as described further in section IV.C.3.c of this Fact Sheet.
3 Annual average.

C. Water Quality-Based Effluent Limitations (WQBELs)

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. Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.

b. Effluent and Ambient Background Data. The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from January 2008 through February 2014, which includes effluent and ambient background data submitted in SMR's and the ROWD.

Upstream receiving water monitoring for iron was not conducted during the term of Order R5-2007-0166. Therefore, for the purposes of determining the available assimilative capacity for iron, upstream receiving water data collected at the California Department of Water Resources (DWR) gaging station for the Sacramento River at Vina between 2011 and 2013 was used.

c. Assimilative Capacity/Mixing Zone. The Discharger submitted an August 2010 *Mixing Zone and Dilution Study Report, Discharge to Sacramento River Near Corning, CA* (2010 Mixing Zone Study), a November 2013 *Corning Mixing Zone Study Addendum* (2013 Addendum), and a December 2013 *Calculation of pH of a Mixture of Two Flows Based on the Procedure in EPA's DESCON Program* (pH Mixing Zone Study) to support mixing zones and dilution credits for those constituents requiring final effluent limitations in order to meet applicable water quality objectives. The Discharger's 2012 ROWD requested aquatic life and human health mixing zones of 20:1, and provided an antidegradation analysis supporting effluent limitations based on the requested mixing zones and dilution credits. Mixing zones and dilution credits for compliance with aquatic life and human health water quality criteria are included in this Order for ammonia, copper, iron, pH, zinc, and chronic toxicity.

i. **Regulatory Guidance for Dilution Credits and Mixing Zones.** The Central Valley Water Board has discretion to accept or deny mixing zones and dilution credits. The CWA directs 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. sections 122.44 and section 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 TMDLs, 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 completely-mixed discharges, the Central Valley Water Board may grant a mixing zone and apply a dilution credit in accordance with Section 1.4.2.1 of the SIP. 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]

ii. **Dilution/Mixing Zone from Order R5-2007-0166.** Order R5-2007-0166 indicated that significant diluting flows in the Sacramento River were available but only allowed a dilution credit of 50:1 for ammonia, less than 4 percent of the receiving water to effluent critical dilution ratio (assuming a completely mixed discharge), to ensure the mixing zone was as small as practicable. The size of the mixing zone was not delineated. Order R5-2007-0166 required the Discharger to conduct a mixing zone/dilution study to confirm that a dilution of 50:1 or greater exists at all times and/or to determine if a larger dilution credit is appropriate to calculate effluent limitations for ammonia.

iii. **Diffuser Configuration.** The Facility discharges to the Sacramento River via a multiport diffuser. The City of Corning owns the diffuser from which both Bell-Carter Olive Company, Inc. and the City of Corning Wastewater Treatment Plant (WWTP) discharge. The outfall capacity is inversely related to the river stage, or water surface elevation, within the Sacramento River. During dry weather conditions, when the river level is low, the outfall capacity is at its maximum (3.8 mgd). However, during high river flows, the outfall capacity is at its minimum (2.0 mgd). During periods of high rainfall or river flows, the City of Corning restricts the amount of flow that the Facility is allowed to discharge. The diffuser is 33 feet in length and consists of four 8-inch diffuser ports with approximately 10 feet between each port. The ports extend upward from the outfall pipe, which is buried below the river bottom and is perpendicular to the river bank, and are approximately 1.3 to 2.7 feet above the channel bed. The river channel at the diffuser has a width of approximately 500 to 600 feet.

iv. **2010 Mixing Zone Study Results.** The 2010 Mixing Zone Study determined the critical dilution ratios using flow data for the Sacramento River at Bend Bridge (near Red Bluff) and combined effluent flows from the Facility and the City of Corning WWTP. Information provided in the 2010 Mixing Zone Study is provided in the table below:

Table F-7. Critical Dilution Ratios

Criterion	Critical Receiving Water Flow (cfs)	Discharge Effluent Flow[1] (cfs)	Dilution Ratio[2] (if completely-mixed)
Acute Aquatic Life	4,250 (1Q10)	4.93 (Maximum Daily) *[3.2 MGD]*	860:1
Chronic Aquatic Life	4,930 (7Q10)	3.85 (4-day average) *[2.5 MGD]*	1,280:1
Human Health	9,780 (Harmonic mean)	2.26 (Arithmetic mean) *[1.5 MGD]*	4,530:1

[1] Represents the combined flow from the Facility and the City of Corning WWTP.
[2] These dilution ratios are not applicable in determining actual, available dilution credits due to incomplete mixing conditions in the receiving water at, and immediately downstream of, the effluent outfall.

The 2010 Mixing Zone Study utilized Visual Plumes and the UM3 modeling in order to estimate the level of dilution achieved by the discharge within the zone of initial dilution (ZID) and concluded that the discharge is incompletely-mixed.

Based on the Visual Plumes modeling, the estimated available dilution for the various mixing scenarios ranged from 6:1 (summer season) to 13:1 (fall season), with the correspondent extent of the ZID ranging from 10 feet to 34 feet. The 2010 Mixing Zone Study also evaluated mixing zone lengths outside the ZID for distances associated with dilutions of 10:1 and 20:1 (i.e., far-field), which are summarized below.

Table F-8. Mixing Zone Lengths for 10:1 and 20:1 Dilution Ratios

Criterion	Mixing Zone Length (feet)	
	10:1 Dilution	20:1 Dilution
Acute Aquatic Life	16	22
Chronic Aquatic Life	17	23
Human Health	27	31

v. **2012 ROWD.** In the 2012 ROWD, the Discharger requested the following mixing zones and dilution credits based on the results of the 2010 Mixing Zone Study. The 2012 ROWD presented a simple antidegradation analysis evaluating the incremental use of assimilative capacity used by the discharge associated with the requested dilution credits and concluded that copper, ammonia, and salinity would use less than 10 percent of the available assimilative capacity and that the current level of treatment constitutes best practicable treatment or control (BPTC) for the discharge.

Table F-9. Requested Dilution Credits from 2012 ROWD

Type of Criterion	Mixing Zone Length (feet)	Dilution Credit
Acute Aq Life	22	20:1
Chronic Aq Life	23	20:1
Human Health	31	20:1

vi. **2013 Addendum.** At the request of the Central Valley Water Board, the Discharger submitted the 2013 Addendum providing additional information to define mixing zone sizes for dilutions greater than 20:1. The 2013 Addendum provided mixing zone sizes for dilutions ranging from 40:1 to 160:1, as shown in the following table. The 2013 Addendum was limited in scope to providing information on mixing zone sizes and corresponding dilution credits; the Addendum did not provide an updated antidegradation analysis supporting higher dilution credits than those requested in the 2012 ROWD.

Table F-10. Mixing Zone Sizes from 2013 Addendum

Dilution Ratio	Mixing Zone Length (feet)		
	Acute	Chronic	Human Health
40:1	65	45	--
60:1	130	75	--
80:1	180	110	--
100:1	240	150	35
120:1	320	190	43
140:1	440	240	55
160:1	--	330	70

vii. **pH Mixing Zone Study.** The Discharger submitted a pH Mixing Zone Study requesting a maximum limit of 9.5 based on a dilution credit of 40:1 and a mixing zone size of 65 feet. The pH Mixing Zone Study utilized the procedure in U.S. EPA's 1988 *Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling* for U.S. EPA's DESCON computer program, which account for the upstream receiving water and effluent characteristics (i.e., temperature, pH, and alkalinity). The Study found that a mixing zone of 65 feet (with a dilution credit of 40:1) provided compliance with the Basin Plan objective for pH in the receiving water.

viii. **Evaluation of Available Dilution for Acute and Chronic Aquatic Life Criteria.** U.S. EPA Region VIII, in its "EPA Region VIII Mixing Zones and Dilution Policy", recommends no dilution for acute aquatic life criteria, stating the following, "*In incomplete mix situations, discharge limitations to implement acute chemical - specific aquatic life criteria and narrative (no acute toxicity) criteria shall be based on achieving such acute criteria at the end-of-pipe (i.e., without an allowance for dilution). This approach is intended to implement the narrative requirement prohibiting acutely toxic conditions in the mixing zone*." The Discharger has been granted acute and chronic mixing zones for compliance with acute and chronic aquatic-life water quality criteria for ammonia, copper, and zinc. Based on the results of the 2010 Mixing Zone Study and as requested in the 2012 ROWD, the acute aquatic life mixing zone under evaluation is 22 feet and the chronic aquatic life mixing zone is 23 feet (see Tables F-8 and F-9 above). This Order also allows an acute aquatic life mixing zone of 65 feet for pH. The acute and chronic aquatic life mixing zones downstream of the diffuser meet the requirements of the SIP as follows:

(a) *Shall not compromise the integrity of the entire waterbody* - The TSD states that, "*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats*." The Sacramento River is approximately 500 to 600 feet wide at the diffuser. The largest aquatic life mixing zone of 65 feet is less than 33 feet wide near the diffuser outfall. The mixing zones are small relative to the waterbody and do not compromise the integrity of the entire waterbody.

(b) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The SIP requires that the acute mixing zone be appropriately sized to prevent lethality to organisms passing through the mixing zone. U.S. EPA recommends that float times through a mixing zone less than 15 minutes ensures that there will not be lethality to passing organisms. The acute mixing zone for copper, zinc, and ammonia

allowed in this Order extends 23 feet downstream from the diffuser. The float time at critical low receiving water flow conditions is less than 18 seconds[1]. The pH mixing zone allowed in this Order extends 65 feet downstream from the diffuser. The float time at critical low receiving water flow conditions is less than 50 seconds. In addition, this Order includes an acute toxicity effluent limitation that requires compliance to be determined based on acute bioassays using 100% effluent. Compliance with these requirements ensures that acutely toxic conditions to aquatic life passing through the acute and chronic mixing zones do not occur.

(c) *Shall not restrict the passage of aquatic life* – The acute and chronic mixing zones are very small relative to the large size of the receiving water and constitute less than 5% of the river width; therefore, there is an adequate zone of passage for aquatic life in the receiving water.

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

(e) *Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance* – The acute and chronic mixing zones will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance.

(f) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The acute and chronic mixing zones are small relative to the water body, so it will not dominate the water body. The Discharger shares an outfall with the City of Corning WWTP, and the 2010 Mixing Zone Study accounted for both discharges. There are no other outfalls or mixing zones in the vicinity of the discharge.

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

ix. **Evaluation of Available Dilution for Human Health Criteria.** Section 1.4.2.2 of the SIP, provides that mixing zones should not be allowed at or near drinking water intakes. Furthermore, regarding the application of a mixing zone for protection of human health, the TSD states that, "...*the presence of mixing zones should not result in significant health risks, when evaluated using reasonable assumptions about exposure pathways. Thus, where drinking water contaminants are a concern, mixing zones should not encroach on drinking water intakes.*" There are no drinking water intakes in the human health mixing zone. The Discharger has been granted a human health mixing zone for compliance with human health water quality criteria for iron. Based on the results of the Mixing Zone Study, the largest human health mixing zone granted is 31 feet. The human health criteria mixing zone meets the requirements of the SIP as follows:

[1] Assuming a current velocity of approximately 1.3 feet per second at critical low flow conditions (4,250 cfs).

(a) *Shall not compromise the integrity of the entire waterbody* - The TSD states that, "*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats*." The human health mixing zone is not applicable to aquatic life criteria. The human health mixing zone does not compromise the integrity of the entire waterbody.

(b) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The human health mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.

(c) *Shall not restrict the passage of aquatic life* – The human health mixing zone is not applicable to aquatic life criteria. Therefore, the mixing zone will not restrict the passage of aquatic life.

(d) *Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State end angered species laws* – The human health mixing zone is not applicable to aquatic life criteria. The mixing zone will not impact biologically sensitive or critical habitats.

(e) *Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance* – The allowance of a human health mixing zone for iron will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance.

(f) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The human health mixing zone is small relative to the water body, so it will not dominate the water body. Furthermore, the mixing zone does not overlap mixing zones from other outfalls.

(g) *Shall not be allowed at or near any drinking water intake* – There are no drinking water intakes within the human health mixing zone.

x. **Final Dilution Credits.** The final dilution credits and associated mixing zones lengths for each pollutant receiving dilution credit(s) are summarized in the table below. The dilution credits allowed in this Order are in accordance with Section 1.4.2.2 of the SIP and are a discretionary act by the Central Valley Water Board.

Table F-11. Final Dilution Credits

Parameter	Units	Dilution Credit			Mixing Zone/Distance Downstream (ft.)		
		Acute	Chronic	Human Health	Acute	Chronic	Human Health
Ammonia Nitrogen, Total (as N)	mg/L	20	20	--	22	23	--
Copper, Total Recoverable	µg/L	20	20	20	22	23	31
Iron, Total Recoverable	µg/L	--	--	20	--	--	31

Parameter	Units	Dilution Credit			Mixing Zone/Distance Downstream (ft.)		
		Acute	Chronic	Human Health	Acute	Chronic	Human Health
pH	standard units	40	--	--	65	--	--
Zinc, Total Recoverable	µg/L	20	20	20	22	23	31

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

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

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

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

(d) The Central Valley Water Board is allowing a mixing zone for acute aquatic-life, chronic aquatic-life, and human health constituents and has determined allowing such mixing zones will not cause acutely toxic conditions to aquatic life passing through the mixing zone.

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

(f) As required 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.

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

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

(i) The Central Valley Water Board has determined based on the current Facility, discharge and receiving water data and characteristics considered for this Order that allowing dilution factors that exceed those proposed by this Order would not comply with the State Anti-degradation Policy for receiving waters outside the allowable mixing zone for ammonia, copper, iron, pH, and zinc. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of Resolution 68-16 states:

"*Any activity which produces or may produce a waste or increased volume or concentration of waste and which dischargers or proposed to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained*."

If the Facility performance, treatment or characteristics of the discharge or receiving water should change, this Order provides a reopener to allow the Board to reconsider and revise the dilution factors granted, including increasing the allowed dilution credit, if necessary.

The 2012 ROWD included an antidegradation analysis supporting the requested dilution credits, which are allowed in this Order. The antidegradation analysis concluded that the requested dilution credits and associated mixing zones would utilize less than 10 percent of the available assimilative capacity for the constituents of concern, and that the current level of treatment represents BPTC for the discharge. The Discharger did not request the higher dilution credits provided in the 2013 Addendum, and did not provide an updated antidegradation analysis supporting higher dilution credits than those granted in this Order. Therefore, the Central Valley Water Board determined the effluent limitations required by this Order will result in the Discharger implementing BPTC of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained. The Central Valley Water Board also determined establishing effluent limitations for ammonia, copper, iron, pH, and zinc, that have been adjusted for dilution credits provided in the table above, are consistent with Section 1.4.2.2 B of the SIP that requires the Central Valley Water Board to deny or significantly limit a mixing zone and dilution credits as necessary to comply with other regulatory requirements.

(j) Therefore, the Central Valley Water Board has determined the effluent limitations established in the Order for ammonia, copper, iron, pH, and zinc, that have been adjusted for dilution credits provided in the table above, are appropriate and comply with the Basin Plan, SIP, Federal anti-degradation regulations and Resolution 68-16.

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 reasonable worst-case 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. (SIP, § 1.2; 40 CFR § 131.38(c)(4)) 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] The CTR also 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.[5] The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions.

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 and WQO 2004-0013 for the Yuba City Wastewater Treatment Plant. 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. (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)

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[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.

[3] 40 C.F.R. 131.38 § (c)(4)(ii)

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

[5] 40 C.F.R. 131.38 § (c)(2)(i)

The equation describing the total recoverable regulatory criterion, as established in the CTR[1], is as follows:

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

Where:
H = hardness (as $CaCO_3$)[2]
WER = water-effect ratio
m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants "m" and "b" are specific to both the metal under consideration, and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The upstream receiving water hardness varied from 48 mg/L to 64 mg/L for five samples collected from December 2008 to December 2012. No downstream receiving water data was available. For calculating the CTR criteria, the upstream ambient hardness has been used. The SIP, CTR, and State Water Board do not require use of the minimum observed ambient hardness in the CTR equations. The hardness used must be consistent with design conditions and protective of water quality criteria under all flow conditions.

The Sacramento River is not effluent dominated and there is not sufficient data available to determine whether the receiving water hardness demonstrates a clear relationship between flow and hardness. Additionally, because there is no downstream receiving water hardness data available, the upstream receiving water hardness was considered for use in the CTR equations. Using the upstream receiving water hardness is reasonable considering that the hydraulic dilution ratio is high and most likely upstream and downstream receiving water hardness is more or less equivalent. Therefore, the median of the upstream receiving water hardness, which represents typical conditions in the receiving water (i.e., the design ambient hardness), was considered for use in the CTR equations. In this Order a design ambient hardness of 57 mg/L has been selected to calculate the CTR criteria.

The Facility discharges both hardness and metals, which must be considered in the downstream ambient receiving water to ensure the criteria are protective under all flow conditions. The tables below examine how the downstream ambient conditions change with varying mixtures of effluent and upstream receiving water. The calculations determine whether or not toxicity could result from one or more metals using the selected design ambient hardness to calculate the CTR criteria.

A simple mass balance (Equation 2) is used to model the ambient concentrations of hardness and metals in the receiving water downstream of the discharge for all possible mixtures of effluent and upstream receiving water under all flow conditions.

$$C_{downstream} = C_{upstream} \times (1\text{-MIX}) + C_{effluent} \times (\text{MIX}) \qquad \text{(Equation 2)}$$

Where:

$C_{downstream}$ = Downstream receiving water concentration

[1] 40 C.F.R. § 131.38(b)(2).
[2] For this discussion, all hardness values are in mg/L as $CaCO_3$.

$C_{upstream}$ = Upstream receiving water concentration

$C_{effluent}$ = Effluent concentration

MIX = Fraction of effluent in downstream ambient receiving water

For each of several downstream ambient mixtures of upstream receiving water and effluent, the potential for toxicity is examined. The hardness of the mixture is calculated, and the resultant water quality criterion is calculated from the CTR equation. The metals concentration is also calculated for the mixture of upstream receiving water and effluent. If the metals concentration complies with the CTR criterion for that mixture, the ambient mixture is not toxic, and "Yes" is indicated in the far right column. If the metals concentration exceeds the CTR criterion for that mixture, the ambient concentration is toxic, and "No" is indicated in the far right column. The results of these evaluations for the metals with hardness-dependent criteria are summarized in the following Tables.

For this evaluation the following conservative assumptions have been made:

- Upstream receiving water at the lowest observed upstream receiving water hardness (i.e., 48 mg/L)
- No assimilative capacity for each metal in the upstream receiving water (i.e., metals concentration equal to CTR criteria calculated using a hardness of 48 mg/L).
- Effluent hardness at the lowest observed effluent hardness of 122 mg/L

Table F-12. Cadmium Evaluation (Design Ambient Hardness = 57 mg/L)

Assumed Upstream Receiving Water Cadmium Concentration[1]					**1.38**
				Cadmium Chronic Criterion[2]	**1.58**
Mix[6]		**Mixed Downstream Ambient Concentration**			**Complies with CTR Criteria**
		Hardness [3] (mg/L)	**CTR Criteria [4] (µg/L)**	**Cadmium [5] (µg/L)**	
High Flow	1%	49	1.40	1.39	**Yes**
	5%	52	1.47	1.39	**Yes**
	15%	59	1.63	1.41	**Yes**
	25%	67	1.79	1.43	**Yes**
	50%	85	2.17	1.48	**Yes**
	75%	104	2.53	1.53	**Yes**
Low Flow	100%	122	2.88	1.58	**Yes**

Table F-13. Copper Evaluation (Design Ambient Hardness = 57 mg/L)

Assumed Upstream Receiving Water Copper Concentration[1]	**5.0**
Copper Chronic Criterion[2]	**5.8**

Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Copper [5] (µg/L)	
High Flow	1%	49	5.0	5.0	**Yes**
	5%	52	5.3	5.0	**Yes**
	15%	59	6.0	5.1	**Yes**
	25%	67	6.6	5.2	**Yes**
	50%	85	8.1	5.4	**Yes**
	75%	104	9.6	5.6	**Yes**
Low Flow	100%	122	11.1	5.8	**Yes**

Table F-14. Chromium III Evaluation (Design Ambient Hardness = 57 mg/L)

Assumed Upstream Receiving Water Chromium III Concentration[1]					**113.5**
				Chromium III Chronic Criterion[2]	**130.6**
Mix[6]		**Mixed Downstream Ambient Concentration**			**Complies with CTR Criteria**
		Hardness [3] (mg/L)	**CTR Criteria [4] (µg/L)**	**Chromium III [5] (µg/L)**	
High Flow	1%	49	114.9	113.6	**Yes**
	5%	52	120.6	114.3	**Yes**
	15%	59	134.5	116.0	**Yes**
	25%	67	148.2	117.8	**Yes**
	50%	85	181.2	122.0	**Yes**
	75%	104	212.9	126.3	**Yes**
Low Flow	100%	122	243.6	130.6	**Yes**

Table F-15. Lead Evaluation (Design Ambient Hardness = 57 mg/L)

Assumed Upstream Receiving Water Lead Concentration[1]					**1.25**
				Lead Chronic Criterion[2]	**1.56**
Mix[6]		**Mixed Downstream Ambient Concentration**			**Complies with CTR Criteria**
		Hardness [3] (mg/L)	**CTR Criteria [4] (µg/L)**	**Lead[5] (µg/L)**	
High Flow	1%	49	1.27	1.3	**Yes**
	5%	52	1.37	1.3	**Yes**
	15%	59	1.63	1.3	**Yes**
	25%	67	1.89	1.3	**Yes**
	50%	85	2.59	1.4	**Yes**
	75%	104	3.32	1.5	**Yes**
Low Flow	100%	122	4.10	1.6	**Yes**

Table F-16. Nickel Evaluation (Design Ambient Hardness = 57 mg/L)

Assumed Upstream Receiving Water Nickel Concentration[1]					28.03
Nickel Chronic Criterion[2]					32.42
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Nickel [5] (µg/L)	
High Flow	1%	49	28.40	28.1	Yes
	5%	52	29.85	28.3	Yes
	15%	59	33.43	28.7	Yes
	25%	67	36.94	29.1	Yes
	50%	85	45.46	30.2	Yes
	75%	104	53.70	31.3	Yes
Low Flow	100%	122	61.72	32.4	Yes

Table F-17. Silver Evaluation (Design Ambient Hardness = 57 mg/L)

Assumed Upstream Receiving Water Silver Concentration[1]					1.15
Silver Acute Criterion[2]					1.54
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Silver [5] (µg/L)	
High Flow	1%	49	1.18	1.2	Yes
	5%	52	1.30	1.2	Yes
	15%	59	1.64	1.2	Yes
	25%	67	2.01	1.2	Yes
	50%	85	3.07	1.3	Yes
	75%	104	4.31	1.4	Yes
Low Flow	100%	122	5.71	1.5	Yes

Table F-18. Zinc Evaluation (Design Ambient Hardness = 57 mg/L)

Assumed Upstream Receiving Water Zinc Concentration[1]					64.33
Zinc Chronic Criterion[2]					74.42
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Zinc [5] (µg/L)	
High Flow	1%	49	65.17	64.4	Yes
	5%	52	68.51	64.8	Yes
	15%	59	76.73	65.8	Yes
	25%	67	84.80	66.9	Yes
	50%	85	104.40	69.4	Yes

	75%	104	123.36	71.9	**Yes**
Low Flow	100%	122	141.80	74.4	**Yes**

Footnotes for CTR Hardness-dependent Metals Tables (see above)

[1] Highest assumed upstream receiving water metals concentration calculated using CTR equation (Equation 1) for chronic/ acute criterion at a hardness of 48 mg/L.

[2] CTR Criteria calculated using CTR equation (Equation 1) for chronic/acute criterion at the design ambient hardness (57 mg/L) for the particular metal.

[3] Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable mixture using Equation 2.

[4] Mixed downstream ambient criteria are the chronic/acute criteria calculated using the CTR equation (Equation 1) at the mixed hardness.

[5] Mixed downstream ambient metals concentration is the mixture of the receiving water and effluent metals concentrations at the applicable mixture using Equation 2.

[6] The mixture percentage represents the fraction of effluent in the downstream ambient receiving water. The mixture ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

Table F-19. Summary of Design Ambient Hardness and CTR Criteria for Hardness-dependent Metals

CTR Metals	Design Ambient Hardness (mg/L)	Criteria (µg/L, total recoverable)[1]	
		acute	chronic
Cadmium	57	2.4	1.6
Copper	57	8.2	5.8
Chromium III	57	1095.8	130.6
Lead	57	39.9	1.6
Nickel	57	291.6	32.4
Acute Silver	57	1.5	N/A
Zinc	57	74.4	74.4

[1] Metal criteria rounded to two significant figures in accordance with the CTR.

[2] Per Footnote x for the acute criterion for cadmium, copper, and zinc in the CTR at 40 CFR 131.38(b)(1), the site-specific objectives for the Sacramento River above Hamilton City in Table III-1 of the Basin Plan applies in lieu of the acute CTR criterion.

3. Determining the Need for WQBEL's

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

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

i. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

Table F-20. 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	900, 1600, 2200	N/A	8,250	12,750
TDS (mg/L)	Varies	500, 1000, 1500	N/A	5,766	10,812
Sulfate (mg/L)	Varies	250, 500, 600	N/A	787	787
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	1,481	3,820

[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 Basin Plan contains a site-specific receiving water electrical conductivity limit not to exceed 230 µmhos/cm (50 percentile) or 235 µmhos/cm (90 percentile) in the Sacramento River (at Knights Landing above Colusa Basin Drain), based upon the previous 10 years of record. Knights Landing is located approximately 130 miles downstream of the discharge location.

(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.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Chloride, electrical conductivity, sulfate, and total dissolved solids are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for these non-priority pollutant constituents. For conducting the RPA, the U.S. EPA recommends using a mass-balance approach to determine the expected critical downstream receiving water concentration using a steady-state approach[1]. This downstream receiving water concentration is then compared to the applicable water quality objectives to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion. This approach allows assimilative capacity and dilution to be factored into the RPA. This U.S. EPA recommended approach has been used for chloride, electrical conductivity, sulfate, and total dissolved solids. The critical downstream receiving water concentration is calculated using equation 2 below:

$$C_r = \frac{Q_s C_s + Q_d C_d}{Q_s + Q_d} \quad \text{(Equation 2)}$$

Where:

Q_s = Critical stream flow

Q_d = Critical effluent flow from discharge flow data

C_s = Critical upstream pollutant concentration

C_d = Critical effluent pollutant concentration

C_r = Critical downstream receiving water pollutant concentration

The most stringent water quality objective for chloride is the NAWQC chronic criterion for protection of freshwater aquatic life. Therefore, for chloride, a critical stream flow (Qs) of 3,186 MGD (7Q10) was used, which represents the 7Q10, and a critical effluent flow (Qd) of 1.4 MGD (permitted maximum daily flow) was used for the RPA. The Basin Plan objective for electrical conductivity and the Secondary MCL for total dissolved solids are long-term objectives. Therefore, a critical stream flow (Qs) of 6,321 MGD (harmonic mean) and a critical effluent flow (Qd) of 0.75 MGD (permitted annual average flow) were used for electrical

[1] U.S. EPA NPDES Permit Writers' Handbook (EPA 833-K-10-001 September 2010)

conductivity and total dissolved solids. Additional maximum observed annual average effluent and receiving water concentrations were used to represent the critical effluent pollutant concentration (C_d) and critical upstream receiving water pollutant concentrations (C_r), respectively.

(1) **Chloride.** Chloride concentrations in the effluent ranged from 250 mg/L to 3,820 mg/L, with a maximum annual average of 1,481 mg/L, based on 298 samples collected between January 2008 and February 2014. Background concentrations in the Sacramento River ranged from <1 mg/L to 62 mg/L, with a maximum annual average of 14 mg/L, based on 67 samples collected between January 2008 and February 2014. Thus, the receiving water has been consistently in compliance with the NAWQC resulting in available assimilative capacity for consideration in the RPA.

Q_s = 3,186 MGD

Q_d = 1.4 MGD

C_s = 62 mg/L

C_d = 3,820 mg/L

$$C_r = \frac{(3{,}186\ MGD \times 62\ mg/L\ ) + (1.4\ MGD \times 3{,}820\ mg/L\ )}{(3{,}186\ MGD + 1.4\ MGD)} = 64\ mg/L$$

The critical downstream receiving water chloride concentration, C_r, is 64 mg/L, which does not exceed the NAWQC of 230 mg/L. Considering the large dilution and assimilative capacity in the receiving water, the small increase in chloride caused by the discharge does not result in a reasonable potential to cause or contribute to an exceedance of the objectives for chloride in the receiving water.

(2) **Electrical Conductivity.** Electrical conductivity concentrations in the effluent ranged from 1,129 µmhos/cm to 12,750 µmhos/cm, with a maximum annual average of 8,250 µmhos/cm, based on 309 samples collected between January 2008 and February 2014. Background concentrations in the Sacramento River ranged from 14 µmhos/cm to 886 µmhos/cm, with a maximum annual average of 204 µmhos/cm, based on 66 samples collected between January 2008 and February 2014. Thus, the receiving water has been consistently in compliance with the Basin Plan objective resulting in available assimilative capacity for consideration in the RPA.

Q_s = 6,320 MGD

Q_d = 0.75 MGD

C_s = 204 µmhos/cm

C_d = 8,250 µmhos/cm

$$C_r = \frac{(6{,}320\ MGD \times 204\ \mu mhos/cm) + (0.75\ MGD \times 8{,}250\ \mu mhos/cm)}{(6{,}320\ MGD + 0.75\ MGD)} = 205\ \mu mhos/cm$$

The critical downstream receiving water electrical conductivity concentration, C_r, is 205 µmhos/cm, which does not exceed the Basin Plan objective of 230 µmhos/cm. Considering the large dilution and assimilative capacity in the receiving water, the small increase in

electrical conductivity caused by the discharge does not result in a reasonable potential to cause or contribute to an exceedance of the objectives for electrical conductivity in the receiving water.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from <5 mg/L to 787 mg/L, with a maximum annual average of 787 mg/L, based on five samples collected between January 2008 and February 2014. Upstream receiving water monitoring data for sulfate is not available. Therefore, the critical downstream receiving water sulfate concentration could not be determined.

(4) **Total Dissolved Solids.** Total dissolved solids concentrations in the effluent ranged from 1,316 mg/L to 10,812 mg/L, with a maximum annual average of 5,766 mg/L, based on 295 samples collected between January 2008 and February 2014. Background concentrations in the Sacramento River ranged from 62 mg/L to 248 mg/L, with a maximum annual average of 139 mg/L, based on 66 samples collected between January 2008 and February 2014. Thus, the receiving water has been consistently in compliance with the Secondary MCL resulting in available assimilative capacity for consideration in the RPA.

Q_s = 6,320 MGD

Q_d = 0.75 MGD

C_s = 139 mg/L

C_d = 5,766 mg/L

$$C_r = \frac{(6{,}320\ MGD \times 139\ \text{mg/L}) + (0.75\ MGD \times 5{,}766\ \text{mg/L})}{(6{,}320\ MGD + 0.75\ MGD)} = 140\ mg/L$$

The critical downstream receiving water total dissolved solids concentration, C_r, is 140 mg/L, which does not exceed the Secondary MCL of 500 mg/L. Considering the large dilution and assimilative capacity in the receiving water, the small increase in total dissolved solids caused by the discharge does not result in a reasonable potential to cause or contribute to an exceedance of the objectives for total dissolved solids in the receiving water.

(c) **WQBEL's.** Order R5-2007-0166 included mass-based effluent limitations for chloride and total dissolved solids. As described in subsection IV.C.3.a.i(b) above, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the Discharger discharges to the Sacramento River and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, this Order retains the mass limitations for total dissolved solids and chloride from Order R5-2007-0166. In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to develop and implement a salinity evaluation and minimization plan.

<u>TDS and Chloride effluent limits background</u>
The mass limits for TDS and chlorides were previously specified in both the Facility's original NPDES permit (Order No. 95-113) and the WDRs for the Class II Surface Impoundments (Order No. 95-134). The sum of the

annual average mass limits from these two Orders was 60,200 lbs TDS and 21,200 lbs chloride. The daily maximum limit contained in these historic permits was 87,600 lbs TDS and 31,300 lbs chloride.

The EIR of April 1993 presented a model of plume concentrations at various distances from the outfall, based on a TDS concentration of 4,556 mg/l, a chloride concentration of 1,576 mg/l and a flow of 1.75 mgd (1.0 mgd domestic flow from the City and 0.75 mgd industrial flow from Bell-Carter). This is equivalent to mass discharge of 22,993 lbs/day chloride and 66,470 lbs/day TDS for the combined discharge from the City and Bell-Carter. The analysis indicated that at minimum flows in the Sacramento River, (4,121 mgd); the increase in TDS and chloride at full mixing (1000 ft. downstream of the outfall) would be from 80 mg/l to 84.3 mg/l and from 3.0 mg/l to 3.74 mg/l respectively. The dilution factor at minimum river flow and 1.75 mgd combined flow from the City's WWTP and Bell-Carter at the time was approximately 2,350:1.

In 2000, the Discharger's NPDES permit (Order 5-00-113), contained effluent mass limits for TDS and chlorides that applied to the total discharge from Bell-Carter (discharge to the City's WWTP and the direct discharge to the City-owned outfall line). The reason for this was that TDS and chlorides discharged from Bell-Carter to the City's WWTP were not treated. The annual average effluent limit of 59,800 lbs/day TDS in Order 5-00-113 was based on the EIR value less the contribution from the City domestic wastewater. The City's contribution was based on a flow of 1.0 mgd and a TDS concentration of 800 mg/l. The annual average effluent limit of 20,900 lbs/day chlorides in Order 5-00-113 was based on a chloride contribution from the City of 250 mg/l. The daily maximum limits of 79,800 lbs/day TDS and 27,900 lbs/day chloride were based on the ratio of the increase from the annual average flow of 0.75 to 1.0 mgd daily maximum flow.

The previous NPDES permit (Order R5-2007-0166) retained the effluent limits specified for TDS and chlorides in Order R5-00-113, as does this Order.

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

i. **Benzo(a)pyrene**

(a) **WQO.** The CTR includes a criterion of 0.0044 µg/L for benzo(a)pyrene for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** As shown in the table below, benzo(a)pyrene was detected but not quantified (i.e., j-flagged) in one of six effluent samples collected between January 2008 and February 2014. Benzo(a)pyrene was also detected but not quantified (i.e., j-flagged) in one of six upstream receiving water samples collected between January 2008 and February 2014.

Table F-21. Benzo(a)pyrene Data Summary

Sample Date	Results (µg/L)	SIP ML (µg/L)	RL (µg/L)
Effluent			
17 December 2008	ND	2	5
16 December 2009	ND	2	5
22 December 2010	ND	2	5
12 December 2011	ND	2	5
12 December 2012	ND	2	5
4 December 2013	0.20 DNQ	2	2
Receiving Water			
17 December 2008	ND	2	5
16 December 2009	ND	2	5
12 January 2011	ND	2	5
12 December 2011	ND	2	5
12 December 2012	ND	2	5
4 December 2013	0.20 DNQ	2	2

ND – Not detected
DNQ – Detected, but not quantified

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

(1) Required ML's are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the Reporting Level (RL).

(2) An RL can be lower than the ML in Appendix 4 only when the Discharger agrees to use an RL that is lower than the ML listed in Appendix 4. The Central Valley Water Board and the Discharger have no agreement to use an RL lower than the listed ML's.

(3) SIP Section 1.2 requires that the Regional Water Board use all available, valid, relevant, representative data and information, as determined by the Regional Water Board, to implement the SIP. SIP Section 1.2 further states that the Regional Water Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

(4) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

(5) Further, SIP Section 2.4.5 (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part it states, "*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL*." Thus, if submitted data is below the RL, that data cannot be used to determine compliance with effluent limitations.

(6) Data reported below the ML is not considered valid data for use in determining reasonable potential. Therefore, in accordance with

Section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the ML is inappropriate and insufficient to be used to determine reasonable potential.

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

SIP Appendix 4 cites two ML's for benzo(a)pyrene. The lowest applicable ML cited for benzo(a)pyrene is 2 µg/L. Except for the December 2013 effluent and receiving water samples, the Discharger did not use an RL as sensitive as the ML required by the SIP. For the December 2013 effluent and receiving water samples, the Discharger used an analytical method that was as sensitive as the ML required by the SIP. The effluent results were all estimated values (i.e., DNQ) or non-detect. Therefore, the submitted effluent and receiving water data is inappropriate and insufficient to determine reasonable potential under the SIP.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for benzo(a)pyrene. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding appropriate effluent limitations.

ii. **Bis (2-ethylhexyl) phthalate**

(a) **WQO.** The CTR includes a criterion of 1.8 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. "Clean techniques" are used to ensure that sample containers, sampling apparatus, and analytical equipment are not sources of the detections for monitoring bis (2-ethylhexyl) phthalate.

As shown in the table below, bis (2-ethylhexyl) phthalate was detected but not quantified (i.e., j-flagged) in one of six effluent samples collected between January 2008 and February 2014. Bis (2-ethylhexyl) phthalate was also detected but not quantified (i.e., j-flagged) in one of six upstream receiving water samples collected between January 2008 and February 2014.

Table F-22. Bis (2-ethylhexyl) phthalate Data Summary

Sample Date	Results (µg/L)	SIP ML (µg/L)	RL (µg/L)
Effluent			
17 December 2008	ND	5	5
16 December 2009	ND	5	5
22 December 2010	2.0 DNQ	5	5
12 December 2011	ND	5	5

Sample Date	Results (µg/L)	SIP ML (µg/L)	RL (µg/L)
12 December 2012	ND	5	5
4 December 2013	ND	5	5
Receiving Water			
17 December 2008	ND	5	5
16 December 2009	ND	5	5
12 January 2011	1.0 DNQ	5	5
12 December 2011	ND	5	5
12 December 2012	ND	5	5
4 December 2013	ND	5	5

ND – Not detected
DNQ – Detected, but not quantified

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

(1) Required ML's are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the RL.

(2) An RL can be lower than the ML in Appendix 4 only when the Discharger agrees to use an RL that is lower than the ML listed in Appendix 4. The Central Valley Water Board and the Discharger have no agreement to use an RL lower than the listed ML's.

(3) SIP Section 1.2 requires that the Regional Water Board use all available, valid, relevant, representative data and information, as determined by the Regional Water Board, to implement the SIP. SIP Section 1.2 further states that the Regional Water Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

(4) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

(5) Further, SIP Section 2.4.5 (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part it states, "*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL*." Thus, if submitted data is below the RL, that data cannot be used to determine compliance with effluent limitations.

(6) Data reported below the ML is not considered valid data for use in determining reasonable potential. Therefore, in accordance with Section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the ML is inappropriate and insufficient to be used to determine reasonable potential.

(7) In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the invalid data. Therefore, the Central Valley Water Board will require

additional monitoring for such constituents until such time a determination can be made in accordance with the SIP policy.

SIP Appendix 4 cites two ML's for bis (2-ethylhexyl) phthalate. The lowest applicable ML cited for bis (2-ethylhexyl) phthalate is 5 µg/L. The Discharger used an analytical method that was as sensitive as the ML required by the SIP for all effluent and receiving water samples. The effluent results were all estimated values (i.e., DNQ) or non-detect. Therefore, the submitted effluent and receiving water data is inappropriate and insufficient to determine reasonable potential under the SIP.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for bis (2-ethylhexyl) phthalate. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding appropriate effluent limitations.

iii. **Pentachlorophenol**

(a) **WQO.** The CTR includes a criterion of 0.28 µg/L for pentachlorophenol for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** As shown in the table below, pentachlorophenol was detected but not quantified (i.e., j-flagged) in three of six effluent samples collected between January 2008 and February 2014. Pentachlorophenol was not detected based on six upstream receiving water samples collected between January 2008 and February 2014.

Table F-23. Pentachlorophenol Data Summary

Sample Date	Results (µg/L)	SIP ML (µg/L)	RL (µg/L)
Effluent			
17 December 2008	ND	1	1
16 December 2009	ND	1	1
22 December 2010	0.6 DNQ	1	1
12 December 2011	ND	1	5
12 December 2012	1.2 DNQ	1	5
4 December 2013	0.50 DNQ	1	1
Receiving Water			
17 December 2008	ND	1	1
16 December 2009	ND	1	1
12 January 2011	ND	1	1
12 December 2011	ND	1	5
12 December 2012	ND	1	5
4 December 2013	ND	1	1

ND – Not detected
DNQ – Detected, but not quantified

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

(1) Required ML's are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of

the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the RL.

(2) An RL can be lower than the ML in Appendix 4 only when the Discharger agrees to use an RL that is lower than the ML listed in Appendix 4. The Central Valley Water Board and the Discharger have no agreement to use an RL lower than the listed ML's.

(3) SIP Section 1.2 requires that the Regional Water Board use all available, valid, relevant, representative data and information, as determined by the Regional Water Board, to implement the SIP. SIP Section 1.2 further states that the Regional Water Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

(4) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

(5) Further, SIP Section 2.4.5 (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part it states, "*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL*." Thus, if submitted data is below the RL, that data cannot be used to determine compliance with effluent limitations.

(6) Data reported below the ML is not considered valid data for use in determining reasonable potential. Therefore, in accordance with Section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the ML is inappropriate and insufficient to be used to determine reasonable potential.

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

SIP Appendix 4 cites two ML's for pentachlorophenol. The lowest applicable ML cited for pentachlorophenol is 1 µg/L. For the December 2011 and 2012 samples, the Discharger did not use an RL as sensitive as the ML required by the SIP. For the remaining samples, the Discharger used an analytical method that was as sensitive as the ML required by the SIP. The effluent results were all estimated values (i.e., DNQ) or non-detect. Therefore, the submitted effluent and receiving water data is inappropriate and insufficient to determine reasonable potential under the SIP.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for pentachlorophenol. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this

Order may be reopened and modified by adding appropriate effluent limitations.

c. Constituents with Reasonable Potential. The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, chlorine residual, copper, diazinon and chlorpyrifos, iron, pH, settleable solids, and zinc. 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. **Ammonia**

(a) **WQO.** The 1999 USEPA 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. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature.

The USEPA 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 USEPA'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 has chosen to participate in the Central Valley Clean Water Association (CVCWA) Freshwater Collaborative Mussel Study. Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013

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

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. In this case, effluent limitations for ammonia remain the same whether using the 1999 or the 2013 criteria.

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. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA 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 the Sacramento River has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in the Sacramento River is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

This Order includes an instantaneous maximum effluent limitation pH of 9.5 based on a pH mixing zone of 65 feet, and a maximum receiving water limitation of 8.5 based on the Basin Plan objective. Based on downstream receiving water monitoring conducted 50 feet downstream of the discharge, the maximum observed downstream receiving water pH was 8.46. 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.

Downstream receiving water monitoring for pH and temperature was conducted once per month, resulting in 66 sets of paired pH and temperature data. The maximum observed downstream receiving water temperature and pH were 18.3°C and 8.46 standard units, respectively. The maximum ammonia effluent concentration was 14.4 mg/L. The 30-day CCC was determined by calculating the CCC for each paired pH and temperature set and taking the 95th percentile CCC (with criterion ranked from high (less stringent) to low (more stringent)). The resulting 30-day CCC is 1.98 mg/L. 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 1.98 mg/L (as N), the 4-day average concentration that should not be exceeded is 4.95 mg/L (as N).

(b) **RPA Results.** The maximum effluent ammonia concentration was 14.4 mg/L, based on 309 samples collected between January 2008 and February 2014. The maximum observed upstream receiving water ammonia concentration was 0.06 mg/L, based on three samples collected between January 2008 and February 2014. Therefore the effluent has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

(c) **WQBEL's.** The Central Valley Water Board calculates WQBEL's in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging

period for calculating the long-term average discharge condition (LTA). However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTA's corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and the MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures.

The maximum observed upstream receiving water ammonia concentration was 0.06 mg/L based on three samples collected between January 2008 and February 2014; therefore, the receiving water contains assimilative capacity for ammonia. Thus, as discussed further in section IV.C.2.c, acute and chronic dilution credits of 20:1 were allowed in the development of WQBELs for ammonia. This Order contains an AMEL and MDEL of 15 mg/L and 44 mg/L, respectively, based on the NAWQC.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the maximum effluent ammonia concentration of 14.4 mg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Chlorine Residual**

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

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

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Chlorine is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent*

monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)." U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data*."

The Discharger uses a chlorine-containing compound to periodically backflush the ultrafiltration system, which is extremely toxic to aquatic organisms. The existing chlorine use and the potential for chlorine to be discharged provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

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

(d) **Plant Performance and Attainability.** Chlorine residual was not detected at concentrations exceeding the applicable effluent limitations based on 139 effluent samples collected between January 2008 and February 2014. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iii. **Copper**

(a) **WQO.** The CTR and Basin Plan include hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent.

(b) **RPA Results.** Section IV.C.2.e of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as copper. The RPA was conducted using the design ambient hardness to calculate the criteria for comparison to the maximum ambient background concentration and the MEC. The table below shows the specific criteria used for the RPA.

Table F-24. Copper RPA Summary

	Basin Plan Objective	CTR Chronic Criterion	Maximum Concentration	Reasonable Potential? (Y/N)
Receiving Water	8.1 µg/L[1]	5.8 µg/L[1]	2.2 µg/L	No[2]
Effluent	8.1 µg/L[1]	5.8 µg/L[1]	89.4 µg/L	Yes[3]

Note: All copper concentrations are given as total recoverable.
[1] Based on design ambient hardness of 57 mg/L (as $CaCO_3$).
[2] Per Section 1.3, step 6 of the SIP.
[3] Per Section 1.3, step 4 of the SIP.

Based on the available data, copper in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) **WQBEL's.** The receiving water contains assimilative capacity for copper; therefore, acute and chronic aquatic life dilution credits of 20:1 were allowed in the development of WQBEL's for copper. This Order contains a final AMEL and MDEL for copper of 63 µg/L and 125 µg/L, respectively, based on the Basin Plan objective and the CTR criterion for protection of freshwater aquatic life.

(d) **Plant Performance and Attainability.** Facility effluent copper data (µg/L) is summarized below:

2/13/2008	22.5 µg/L
12/17/2008	34.5 µg/L
12/16/2009	89.4 µg/L
12/22/2010	35.7 µg/L
12/12/2011	29.5 µg/L
12/12/2012	Non-detect

Analysis of the effluent data shows an average copper effluent concentration of 35.3 µg/L and an MEC of 89.4 µg/L. The MEC is greater than the applicable AMEL, however the MEC is based on a single sample and not a monthly average. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iv. **Diazinon and Chlorpyrifos**

(a) **WQO.** The Central Valley Water Board recently completed a TMDL for diazinon and chlorpyrifos in the Sacramento and Feather Rivers 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 was adopted by the Central Valley Water Board on 21 October 2005 and was approved by the State Water Board on 2 May 2006. The Basin Plan amendment was approved by the Office of Administrative Law on 30 June 2006 and is now State law. The amendment was approved by U.S. EPA and went into effect on 20 December 2006.

The amendment modifies the Basin Plan Chapter III (Water Quality Objectives) to establish site specific numeric objectives for chlorpyrifos

and diazinon in the Sacramento and Feather Rivers. 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 provides that: "*The Waste Load Allocations (WLA) for all NPDES-permitted dischargers… shall not exceed the sum (S) of one (1) as defined below.*

$$S = \frac{C_D}{WQO_D} + \frac{C_C}{WQO_C} \leq 1.0$$

where:

C_D = diazinon concentration in µg/L of the point source discharge…

C_C = chlorpyrifos concentration in µg/L of the 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."

(b) **RPA Results.** Effluent and receiving water monitoring data for diazinon and chlorpyrifos is not available. However, due to the TMDL for diazinon and chlorpyrifos in the Sacramento River, WQBEL's for these constituents are required. The TMDL waste load allocation applies to all NPDES dischargers to the Sacramento and Feather Rivers and will serve as the basis for WQBEL's.

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

(1) Average Monthly Effluent Limitation (AMEL)

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

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

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

(2) Maximum Daily Effluent Limitation (MDEL)

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

$C_{D\text{-}max}$ = 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.** No data is available from the Facility to indicate the presence or absence of chlorpyrifos and diazinon. It is unlikely that chlorpyrifos and diazinon will be detected at concentrations exceeding applicable water quality objectives as sales of all non-agricultural uses of diazinon were banned on 31 December 2004 and sales of the majority of non-agricultural uses of chlorpyrifos were banned

in December 2001. The Discharger does not add chlorpyrifos or diazinon to the treatment process.

v. **Iron**

(a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for iron is 300 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.

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

The Discharger uses ferrous gluconate (iron (II) gluconate) as a food additive for black olive production. The maximum observed annual average effluent iron concentration was 2,345 µg/L based on 84 samples collected between January 2008 and February 2014. Therefore, iron in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL.

(c) **WQBEL's.** The Discharger did not collect upstream receiving water data for iron; however, monitoring data for iron from the California Department of Water Resources (DWR) station for the Sacramento River at Vina just upstream of the discharge indicate that the receiving water contains assimilative capacity for iron with a maximum concentration of 120 µg/L based on three samples collected between 2011 and 2013. Therefore, a human health dilution credit of 20:1 was allowed in the development of the WQBEL for iron. This Order contains an annual average effluent limitation for iron of 4,200 µg/L based on the Secondary MCL.

(d) **Plant Performance and Attainability.** The maximum observed annual average effluent iron concentration of 2,345 µg/L is less than the applicable WQBEL. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

vi. **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.** Olive processing wastewater inherently has variable pH. Additionally, some industrial wastewater treatment processes can increase or decrease wastewater pH which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality*." For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

The Facility is an industrial wastewater treatment plant that treats olive processing wastewater. The effluent pH ranged from 7.22 to 9.18 based on 314 samples collected between January 2008 and February 2014. The upstream receiving water pH ranged from 6.61 to 8.34 based on 48 samples collected between January 2008 and February 2014. The pH for the Facility's influent varies due to the nature of olive processing wastewater, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water.

(c) **WQBEL's.** An instantaneous minimum effluent limitation of 6.5 is included in this Order based on the Basin Plan objective for pH. The receiving water contains assimilative capacity for the maximum pH; therefore, a dilution credit of 40:1 was allowed in the development of the instantaneous maximum effluent limitation for pH. This Order contains an instantaneous maximum effluent of 9.5 for pH based on the Basin Plan objective.

(d) **Plant Performance and Attainability.** The effluent pH range was within the instantaneous minimum and instantaneous maximum effluent limitations established in this Order based on 314 samples. Therefore, the Central Valley Water Board concludes that the Discharger can consistently comply with these effluent limitations.

vii. **Settleable Solids**

(a) **WQO.** For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses*." The existing permit included an AMEL of 0.1 ml/L and an MDEL of 0.2 ml/L for setteable solids to implement the narrative settleable solids objective.

(b) **RPA Results.** Olive processing wastewater inherently contains settleable solids which if not properly controlled, would violate the Basin Plan's narrative objective for settleable solids in the receiving water. Therefore, reasonable potential exists for settleable solids and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality*." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Settleable solids is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

The Facility is an industrial wastewater treatment plant that treats olive processing wastewater. The maximum observed effluent settleable solids concentration was 0.4 ml/L, based on 310 samples collected between January 2008 and February 2014. The settleable solids for the Facility's influent varies due to the nature of olive processing wastewater, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative objective for settleable solids in the receiving water.

(c) **WQBEL's.** This Order contains an AMEL and MDEL for settleable solids. Because the amount of settleable solids is measured in terms of volume

per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order.

(d) **Plant Performance and Attainability.** Effluent settleable solids concentrations exceeded the applicable MDEL only twice based on 310 samples. The maximum observed monthly average settleable solids concentration did not exceed the applicable AMEL. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

viii. **Zinc**

(a) **WQO.** The CTR and Basin Plan include hardness-dependent criteria for the protection of freshwater aquatic life for zinc. These criteria for zinc are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent.

(b) **RPA Results.** Section IV.C.2.e of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as zinc. The RPA was conducted using the design ambient hardness to calculate the criteria for comparison to the maximum ambient background concentration and the MEC. The table below shows the specific criteria used for the RPA.

Table F-25. Zinc RPA Summary

	Basin Plan Objective	CTR Chronic Criterion	Maximum Concentration	Reasonable Potential? (Y/N)
Receiving Water	22[1]	74.4 µg/L[1]	16.3 µg/L	No[2]
Effluent	22[1]	74.4 µg/L[1]	41.5 µg/L	Yes[3]

Note: All zinc concentrations are given as total recoverable.
[1] Based on the design ambient hardness of 57 mg/L (as $CaCO_3$).
[2] Per Section 1.3, step 6 of the SIP.
[3] Per Section 1.3, step 4 of the SIP.

Based on the available data, zinc in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life

(c) **WQBEL's.** The receiving water contains assimilative capacity for zinc; therefore, acute and chronic aquatic life dilution credits of 20:1 were allowed in the development of WQBEL's for zinc. This Order contains a final AMEL and MDEL for zinc of 67 µg/L and 135 µg/L, respectively, based on the Basin Plan objective and the CTR criterion for protection of freshwater aquatic life.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 41.5 µg/L (average effluent concentration is 23.5 µg/L) is below than applicable WQBEL's. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

ix. **BOD_5 & TSS**

(a) **WQO.** There are no applicable water quality objectives for BOD_5 and TSS for the receiving water. However, these compounds are oxygen-demanding substances that can reduce dissolved oxygen concentrations in the receiving water. The Basin Plan contains a water quality objective for the Sacramento River from Keswick Dam to Hamilton City for dissolved oxygen of 9.0 mg/L, from 1 June to 31 August, and 7.0 mg/L at all other times. Furthermore, the Basin Plan contains a water quality objective for suspended material that states, *"Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses."*

(b) **RPA Results.** The Facility utilizes an ultra-filtration membrane system which provides for solids removal, however the Discharger has not used the filtration system full-time. The effluent has exceeded existing BOD_5 limits periodically during the past permit cycle (effluent BOD_5 MEC was reported at 632 mg/L) and therefore the discharge has reasonable potential to cause or contribute to the applicable water quality objectives. In addition, the facility type may be used as information to aid in determining if a water quality-based effluent limitation is required. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The Discharger is an industrial wastewater treatment plant that treats olive processing wastewater. Olive process wastewater inherently contains BOD_5 and TSS. Unless properly treated, the discharge of BOD_5 and TSS can cause or contribute to the applicable water quality objectives in the receiving water.

(c) **WQBELS**. Order R5-2007-0166 included an average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for BOD_5 and TSS based on Best Professional Judgment (BPJ). The effluent limits for BOD_5 were as follows: AMEL of 100 mg/L and MDEL of 150 mg/L. The effluent limits for TSS were as follows: AMEL of 100 mg/L and MDEL of 200 mg/L. For case-by-case effluent limitations based on BPJ, 40 C.F.R. section 122.44(l) requires that effluent limitations must be at least as stringent as the effluent limitations in the previous permit. Therefore, in accordance with 40 C.F.R. section 122.44(l), and for reasons discussed below, this Order retains the effluent BOD_5 and TSS based on BPJ.

As discussed in Section II, the Discharger was issued an NPDES permit for the first time in 1995. The 1995 NPDES permit permitted a direct discharge of 0.4 mgd (monthly average) to the Sacramento River, while the facility continued to discharge 0.35 mgd pretreated olive processing wastewater to the City WWTP. Bell-Carter's effluent BOD_5 and TSS limitations were limited, in part, to a monthly average and daily maximum of 120 mg/L and 200 mg/L, respectively. These effluent limitations were considered interim limits that would be revised downward when treatability studies were completed and additional treatment was implemented. These limitations applied only to the surface water discharge and not the discharge to the City WWTP.

In the late 1990s Bell-Carter installed a dissolved-air floatation (DAF) system and increased aeration which resulted in a decrease of BOD_5 and TSS concentrations. Subsequently, when the Discharger's NPDES permit was renewed in 2000, Order No. 5-00-113 imposed more stringent

BOD_5 and TSS monthly average and daily maximum effluent limits (BOD_5 100/150, TSS 100/200) for the surface water discharge.

In early 2000 Bell-Carter constructed and began operation of a micro-filtration system that, in conjunction with the ponds, was capable of treating its entire waste stream, without relying on the City WWTP. Subsequently, in December 2003 Bell-Carter requested that the Central Valley Water Board increase its flow limitation for direct discharge to the Sacramento River from 0.4 mgd to 0.75 mgd. The request was reviewed and a Special Order (R5-2004-0074) amending the Discharger's current NPDES permit (Order No. 5-00-113) flow limits was adopted by the Central Valley Water Board in June 2004.

In December 2007, the NPDES permit was renewed and WDR Order No. R5-2007-0166 was adopted. At the time of the permit renewal, the Facility's micro-filtration system had been a component to the Facility's treatment system for many years and providing a form of advanced treatment with respect to solids removal. However, Order No. R5-2007-0166 retained the concentration-based BOD_5 and TSS effluent limits from the previous NPDES Permit (Order No. 5-00-113) even though the limits in Order No. 5-00-113 were established based on Bell Carter's treatment ability, prior to the installation of the micro-filtration units.

During the term of the past permit cycle the Discharger has monitored effluent BOD_5 and TSS weekly. The Discharger's compliance history indicates periodic compliance issues related to the final BOD_5 and TSS effluent limits, however, overall general compliance with the existing limits. The ROWD states the long term average BOD_5 and TSS effluent concentration to be 34 mg/L and 29 mg/L, respectively. The effluent monitoring conducted by the Discharger, however, did not indicate whether the effluent was treated with the micro-filtration units (the Discharger did not operate the units year-round). Therefore, the Central Valley Water Board cannot ascertain Bell Carter's treatment ability utilizing the micro-filtration unit versus without filtration (i.e., Pond 6 or Pond 7 effluent). For this reason this Order maintains the existing AMELs and MDELs for BOD_5 and TSS from Order R5-2007-0166; however the Discharger is required to conduct a treatability study on each effluent source (e.g., Pond 6, Pond 7, and micro-filtration effluent) in order to assess treatment efficiency with respect to BOD_5 and TSS removal. In addition, this Order requires effluent monitoring to be conducted on each effluent location (i.e., Pond, Pond 7, and micro-filtration membrane effluent) so that representative samples of effluent from the multiple treatment trains can be monitored.

(d) **Plant Attainability**. The Discharger's compliance history indicates periodic compliance issues related to the final BOD_5 and TSS effluent limits, however, overall general compliance with the existing limits. The Discharger's ROWD states the long-term average BOD_5 and TSS effluent concentration to be 34 mg/L and 29 mg/L, respectively. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

a. This Order includes WQBEL's for BOD (AMEL and MDEL), TSS (AMEL and MDEL), ammonia, chloride, chlorine residual, copper, diazinon and chlorpyrifos, iron, pH, settleable solids, total dissolved solids, and zinc. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

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

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

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 ECA's are set equal to the AMEL 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-26. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants					
Biochemical Oxygen Demand (5-Day @ 20°C)	mg/L	100	150	--	--
	lbs/day	792[1]	1,168[3]	--	--
pH	standard units	--	--	6.5	9.5
Total Suspended Solids	mg/L	100	200	--	--
	lbs/day	792[1]	1,168[3]	--	--
Priority Pollutants					
Copper, Total Recoverable	µg/L	63	125	--	--
Zinc, Total Recoverable	µg/L	67	135	--	--
Non-Conventional Pollutants					
Ammonia Nitrogen, Total (as N)	mg/L	15	44	--	--
	lbs/day	120[1]	510[2]	--	--
Chloride	lbs/day	20,900[6,7]	27,900[4]	--	--
Chlorine, Total Residual	mg/L	0.011[9]	0.019[10]	--	--
Diazinon and Chlorpyrifos	µg/L	[11]	[12]	--	--
Iron, Total Recoverable	µg/L	4,200	--	--	--
Settleable Solids	ml/L	0.1	0.2	--	--
Total Dissolved Solids	lbs/day	59,800[6,8]	79,800[5]	--	--

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

[1] Based on a permitted average monthly flow of 0.95 MGD.
[2] Based on a permitted maximum daily flow of 1.4 MGD.
[3] Based on a daily maximum flow of 1.4 MGD and a concentration of 100 mg/L.
[4] Based on a flow rate of 1.0 MGD and a concentration of 3,350 mg/L.
[5] Based on a flow rate of 1.0 MGD and a concentration of 9,569 mg/L.
[6] Applied as an annual average effluent limit.
[7] Calendar annual average limit based on a flow rate of 0.75 MGD and a concentration of 3,350 mg/L.
[8] Calendar annual average limit based on a flow rate of 0.75 MGD and a concentration of 9,560 mg/L.
[9] Applied as a 4-day median effluent limitation.
[10] Applied as a 1-hour average effluent limitation.
[11] Average Monthly Effluent Limitation

$$S_{avg} = \frac{C_{D_avg}}{0.079} + \frac{C_{C_avg}}{0.012} \leq 1.0$$

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

[12] Maximum Daily Effluent Limitation

$$S_{max} = \frac{C_{D_max}}{0.16} + \frac{C_{C_max}}{0.025} \leq 1.0$$

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

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 WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is an industrial wastewater treatment plant that treats olive processing wastewater containing ammonia, metals,

and other acutely 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.) Dilution has been granted for the chronic condition. Chronic toxicity testing results exceeding 20 chronic toxicity units (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. As shown in the table below, based on annual chronic WET testing performed by the Discharger from January 2008 through February 2014, the effluent toxicity did not exceed the numeric trigger. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective with regards to chronic toxicity.

Table F-27. 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)
2008	1	1	4	4	8
2009	1	1	4	4	16
2010	[1]	[1]	4	8	2
2011	[2]	[2]	4	16	2
2012	1	1	4	8	8

[1] The receiving water (diluent) did not meet test acceptability criteria as a control, therefore dose-response endpoints are not meaningful. A comparison restricted to 100% effluent versus DMW control concluded that survival of fatheads in 100% effluent was significantly reduced from that in the DMW laboratory control, but growth was not significantly reduced.

[2] receiving water (diluent) did not meet test acceptability criteria as a control, therefore dose-response endpoints are not meaningful. A comparison restricted to 100% effluent versus DMW control concluded that both survival and growth of fatheads in 100% effluent were significantly reduced from that in the DMW laboratory control.

The Monitoring and Reporting Program of this Order requires 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 of the Order includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for 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 includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 C.F.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in

[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).

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

For non-POTW's, 40 C.F.R. section 122.45(b)(2)(i) specifies that calculation of limitations which are based on production (or other measure of operation) shall be based upon a reasonable measure of actual production of the Facility. As described in section IV.B.2 of this Fact Sheet, mass-based annual average effluent limitations for BOD_5 and TSS were calculated by multiplying the effluent limitations established by the ELG's and a reasonable measure of the Facility's actual production. The mass-based MDEL for ammonia and AMEL's for ammonia, BOD_5, and TSS were calculated by multiplying the concentration limitation by the permitted average monthly and maximum daily flow limitations, respectively, and the appropriate unit conversion factor. Mass-based limitations for total dissolved solids and chloride were retained from Order R5-2007-0166, as were the mass-based MDELs for BOD_5 and TSS.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires AMEL's and MDEL's for all dischargers other than POTW's unless impracticable. The rationale for using alternative averaging periods for BOD_5 and TSS is discussed in section IV.B.2 of this Fact Sheet and the rationale for using alternative averaging periods for chloride, chlorine residual, pH, and total dissolved solids is discussed in section IV.C.3 of this Fact Sheet.

For effluent limitations based on Secondary MCL's (i.e., iron), this Order includes annual average effluent limitations. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate an AMEL and MDEL.

3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2007-0166, with the exception of effluent limitations for ammonia and the annual average effluent limitations for BOD_5, and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2007-0166. 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.

The Sacramento River is considered an attainment water for ammonia because the receiving water is not listed as impaired on the 303(d) list for this constituent[1]. As discussed in section IV.D.4, below, relaxation of the effluent limits complies with federal and state antidegradation requirements. Thus, relaxation of the effluent limitations for ammonia from Order R5-2007-0166 meets the exception in CWA section 303(d)(4)(B).

b. CWA section 402(o)(2). CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA section 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. CWA section 402(o)(2)(B)(ii) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant where technical mistakes or mistaken interpretations of law were made.

i. **Ammonia.** As described further in section IV.C.3.c of this Fact Sheet, updated information that was not available at the time Order R5-2007-0166 was issued indicates that less stringent effluent limitations for ammonia satisfy requirements in CWA section 402(o)(2)(B)(i). Order R5-2007-0166 included effluent limitations for ammonia based on the 1999 NAWQC acute criterion calculated based on the permitted pH of 9.5 and a dilution credit of 50:1. At the time Order R5-2007-0167 was adopted, no upstream receiving water ammonia data was available for the ECA calculation, and a mixing zone/dilution study had not been conducted. This Order includes effluent limitations for ammonia based on the 1999 NAWQC acute criterion calculated using updated downstream receiving water data for pH and temperature, dilution credits supported by the 2010 Mixing Zone Study and 2013 Addendum, an ECA calculated using receiving water data collected between January 2008 and February 2014, and an updated coefficient of variation based on effluent data collected between January 2008 and February 2014. Thus, relaxation of the effluent limitations for ammonia from Order R5-2007-0166 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the relaxation of effluent limitations based on information that was not available at the time of permit issuance.

ii. **BOD_5 and TSS.** Order R5-2007-0166 included "rolling" effluent limitations for BOD_5 and TSS based on the ELG's and annual production. 40 C.F.R. section 122.45 requires that limits based on production to be based upon a reasonable measure of actual production. 40 C.F.R. section 407.61(x) defines annual average as "*the maximum allowable discharge of BOD_5 or TSS as calculated by multiplying the total mass (kkg or 1000 lb) of each raw commodity processed for the entire processing season or calendar year by the applicable annual average limitation*." Consistent with 40 C.F.R. sections 122.45 and 407.61(x), this Order includes fixed annual average effluent limitations for BOD_5 and TSS based on a reasonable measure of the actual production for the Facility and the applicable annual average limitation from the ELG. The revised, fixed limitations may be less stringent than the previous "rolling" limits when annual production is less than the production values used to determine the fixed limitations, but are more stringent when annual production is greater

[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.

than the production values used to determine the fixed limitations. Thus, relaxation of the effluent limitations for BOD_5 and TSS from Order R5-2007-0166 is in accordance with CWA section 402(o)(2)(B)(ii), which allows for the relaxation of effluent limitations where technical mistakes or mistaken interpretations of law were made.

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 relaxes existing effluent limitations for ammonia based on updated information, as described further in sections IV.C.3.c and IV.D.3 of this Fact Sheet. The relaxation of WQBEL's for ammonia will not result in a decrease in the level of treatment or control or a reduction of water quality. Therefore, the Central Valley Water Board finds that the relaxation of the effluent limitations does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the 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.

This Order contains a Provision that requires the Discharger to operate the micro-filtration membrane system year-round and to the fullest extent practicable. The Provision is necessary to satisfy the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16 and ensure the use of best practicable treatment or control of the discharge. As discussed in Section II, in early 2000 Bell-Carter constructed and began operation of the micro-filtration system that, in conjunction with the ponds, was capable of treating its entire waste stream, without relying on the City WWTP. Subsequently, Bell-Carter requested that the Central Valley Water Board increase its flow limitation for direct discharge to the Sacramento River from 0.4 mgd to 0.75 mgd. The increase in flow would be offset by the decrease in flow (i.e., elimination) of 0.35 mgd to the City WWTP, resulting in a no net increase in flow to the Sacramento River. The request was reviewed and a Special Order (R5-2004-0074) amending the Discharger's NPDES permit (Order No. 5-00-113) flow limits was adopted by the Central Valley Water Board in June 2004. The amendment was limited to the flow increase and did not take in consideration the net increase in solids loading from the additional 0.35 mgd of effluent now being treated to Bell-Carter existing BOD_5 and TSS effluent limits, which were less stringent than the City's secondary treatment standards and corresponding BOD and TSS effluent limits. Furthermore, the Discharger submitted as part of the 2012 ROWD, an antidegradation analysis in support of requested dilution credits which have been granted in this Order. The antidegradation analysis described the use of the micro-filtration system as part of the Facility's treatment system and implementation of best practicable treatment or control of the discharge.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD_5, flow, pH, and TSS. Restrictions on these constituents are discussed in section

IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual WQBEL's for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on May 18, 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 May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 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-28. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis[1]
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	0.75[2]/0.95	1.4	--	--	DC, EIR
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	100	150	--	--	BPJ
	lbs/day	792[3]	1,168[5]	--	--	
	lbs/year	320,000[5]	--	--	--	ELG
pH	standard units	--	--	6.5	9.5	BP, ELG
Total Suspended Solids	mg/L	100	200	--	--	BPJ
	lbs/day	792[3]	1,168[5]	--	--	
	lbs/year	600,000[5]	--	--	--	ELG
Priority Pollutants						
Copper, Total Recoverable	µg/L	63	125	--	--	CTR
Zinc, Total Recoverable	µg/L	67	135	--	--	BP
Priority Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	15	44	--	--	NAWQC
	lbs/day	120[3]	510[4]	--	--	
Chloride	lbs/day	20,900[7,8]	27,900	--	--	EIR
Chlorine, Total Residual	mg/L	0.011[10]	0.019[11]	--	--	NAWQC
Diazinon and Chlorpyrifos	µg/L	[12]	[13]	--	--	TMDL
Iron, Total Recoverable	µg/L	4,200[7]	--	--	--	SEC MCL
Settleable Solids	ml/L	0.1	0.2	--	--	BP

Parameter	Units	Effluent Limitations				Basis[1]
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Total Dissolved Solids	lbs/day	59,800[7,9]	79,800	--	--	EIR

1 DC – Based on the design capacity of the Facility.
BPJ – Based on best professional judgment.
ELG – Based on Effluent Limitations Guidelines and Standards for the Canned and Preserved Fruits Subcategory of the Canned and Preserved Fruits and Vegetables Processing Point Source Category.
BP – Based on water quality objectives contained in the Basin Plan.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
EIR – The 1993 Environmental Impact Report for the Bell-Carter Plant Expansion.
TMDL – Based on the TMDL for the Sacramento and Feather Rivers.
SEC MCL – Based on the Secondary Maximum Contaminant Level.

2 The annual average discharge flow shall not exceed 0.75 MGD.

3 Based on an average monthly flow of 0.95 MGD.

4 Based on a maximum daily flow of 1.4 MGD.

5 Based on a maximum daily flow of 1.4 MGD and a concentration of 100 mg/L.

6 Total annual mass limit for calendar year.

7 Applied as an annual average effluent limitation.

8 Calendar annual average limit based on a flow rate of 0.75 MGD and a concentration of 3,350 mg/L.

9 Calendar annual average limit based on a flow rate of 0.75 MGD and a concentration of 9,560 mg/L.

10 Applied as a 4-day average effluent limitation.

11 Applied as a 1-hour average effluent limitation.

12 Average Monthly Effluent Limitation

$$S_{avg} = \frac{C_{D\text{-}avg}}{0.079} + \frac{C_{C\text{-}avg}}{0.012} \leq 1.0$$

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

13 Maximum Daily Effluent Limitation

$$S_{max} = \frac{C_{D\text{-}max}}{0.16} + \frac{C_{C\text{-}max}}{0.025} \leq 1.0$$

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

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

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

a. **pH.** Order R5-2007-0166 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not require a receiving water limitation for pH change.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. section 131.12).

Ammonia is the only constituent in the discharge regulated by this Order directly related to pH. The fixed ammonia effluent limitations in this Order are based on reasonable worse-case conditions. Although ammonia criteria are based on pH, the fixed ammonia limits are developed to protect under worse-case pH conditions. Therefore the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. section 131.12).

The revised receiving water limitation for pH, which is based on the amendment to the Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current U.S. EPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in pH when pH is maintained within the range of 6.5 to 8.5 in the receiving water are neither beneficial nor adverse and, therefore, are not considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH units would incur substantial costs without demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore the proposed amendment will not violate antidegradation policies.

b. **Turbidity.** Order R5-2007-0166 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. Consistent with the revised water quality

objective in the Basin Plan, this Order limits turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the turbidity receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. section 131.12).

The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the turbidity receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. section 131.12).

The revised receiving water limitation for turbidity, which is based on the amendment to the Basin Plan's turbidity water quality objective, reflects current scientifically supported turbidity requirements for the protection of aquatic life and other beneficial uses and, therefore, will be fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in turbidity allowed by the revised receiving water limitation, when ambient turbidity is below 1 NTU, would not adversely affect beneficial uses and would maintain water quality at a level higher than necessary to protect beneficial uses. Restricting low-level turbidity changes further may require costly upgrades, which would not provide any additional protection of beneficial uses. Thus, any changes in turbidity that would occur under the amended turbidity receiving water limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore, the relaxed receiving water limitations for turbidity will not violate antidegradation policies.

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. This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

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

d. Diazinon and Chlorpyrifos Basin Plan Amendment. Central Valley Water Board staff is developing a Basin Plan Amendment to provide a chlorpyrifos and diazinon effluent limitation exemption if a discharger can demonstrate that diazinon and chlorpyrifos have not been detected in the effluent. The proposed Basin Plan Amendment may result in needed changes to the diazinon and chlorpyrifos requirements in this Order. Therefore, this Order may be reopened to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

e. Mixing Zone/Dilution Confirmation Study. This Order requires the Discharger to submit a Mixing Zone/Dilution Confirmation Study. This Order may be reopened to modify effluent limitations based on dilution credits based on the results of the confirmation study, if necessary.

f. Dilution Credits. This provision allows the Central Valley Water Board to reopen this Order, as appropriate, to modify dilution credits should the Facility performance, treatment, or characteristics of the discharge or receiving water change. Modification for the dilution credit may include increasing the allowed dilution credit, if necessary.

g. Treatability Study. This provision allows the Central Valley Water Board to reopen this Order, as appropriate, to modify effluent limits and/or requirements related to the operation of the microfiltration membrane system, based on the results the treatability study.

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.) As discussed in section IV.C.5 of this Fact Sheet, based on whole effluent chronic toxicity testing performed by the Discharger from January 2008 through February 2014, 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. Order R5-2007-0166 included a numeric toxicity monitoring trigger of >100 TUc (where TUc = 100/NOEC). As described in section IV.C.2.a of this Fact Sheet, this Order grants a chronic dilution credit of 20:1, which corresponds to a mixing zone of 23 feet, based on the Discharger's 2010 Mixing Zone Study and as requested in the ROWD. Therefore, a numeric toxicity monitoring trigger of >20 TUc (where TUc = 100/NOEC) is applied in the provision. Thus, a TRE is triggered when the effluent exhibits toxicity at 5% 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 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-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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

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

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

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

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

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

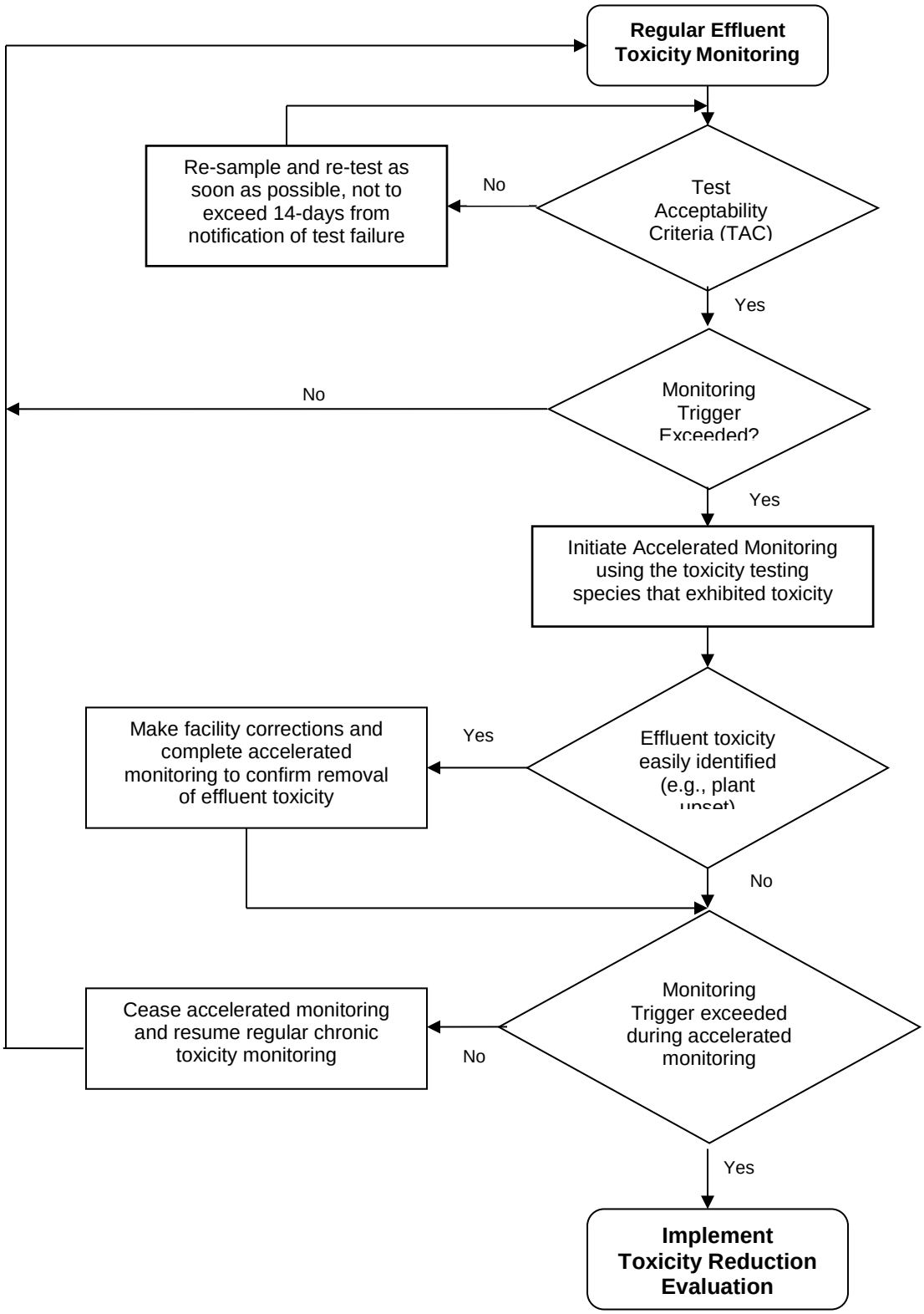
vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition,* EPA 600/R-92/081, September 1993.

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

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

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

Figure F-1
WET Accelerated Monitoring Flow Chart



b. **Chronic Toxicity Study.** As discussed in section IV.C.5.b of this Fact Sheet, the discharge did not exceed the numeric monitoring trigger based on the allowance of dilution credits during the term of Order R5-2007-0166; however, chronic toxicity results of up to 16 TUc were observed, indicating toxicity at 6.25% effluent. Because the effluent has not exceeded the numeric monitoring trigger, the Discharger has not been required to conduct a TRE or TIE to identify and address the sources of toxicity in the effluent; therefore, the source(s) of toxicity in the effluent are unknown. To satisfy the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16, this Order requires the Discharger to conduct a study to identify the sources of toxicity in the effluent and evaluate alternatives to reduce effluent toxicity that will result in BPTC of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained. The Discharger's study shall consider the TRE guidance provided in section VI.B.2.a of this Fact Sheet.

c. **Mixing Zone/Dilution Confirmation Study.** The Discharger is required to perform a Mixing Zone/Dilution Confirmation Study to verify the model results of the 2010 Mixing Zone Study and 2013 Addendum, within 2 years of the effective date of this Order. A Mixing Zone/Dilution Confirmation Study is necessary to confirm the results of the numerical model results presented in the 2010 Mixing Zone Study and 2013 Addendum. The combined results of the numerical mixing zone and the required in-stream dilution study (e.g., dye tracer study) are essential to confirming actual mixing zone conditions in the receiving water.

d. **Mixing Zone Biological Assessment.** In order to ensure that the mixing zones allowed in this Order are protective of the beneficial uses of the receiving water, this Order requires the Discharger to conduct a biological assessment to determine the impacts of the mixing zone. This Order requires that the Discharger provide the assessment results to the California Department of Fish and Wildlife (DFW) for approval.

e. **Treatability Study.** During the term of the past permit cycle, the Discharger has not operated the micro-filtration system full-time and therefore not all effluent discharging from the Facility has received filtration. Effluent from Pond 6 and Pond 7 is treated with extended-aeration and sedimentation only. The Discharger monitored effluent at their outfall; however, the Discharger did not indicate the source of effluent (e.g., Pond, 6, Pond 7, or micro-filtration effluent) and therefore treatment ability with respect to the multiple treatment systems at the Facility are unknown. The Discharger has included the use of the micro-filtration system at their Facility as BPTC, however, the Central Valley Water Board does not have any information on how frequently the filters are utilized (e.g., flow, duration, time of year, etc.) and the difference in effluent quality and pollutant removal efficiencies between the extended-aeration process and the filtration process. Best professional judgment (BPJ) was used in the development of the water-quality based effluent limits for maximum-daily and average monthly BOD_5 and TSS, however, these limits were based on what was achievable at the Facility prior to installation and utilization of the micro-filtration system. The treatability study is necessary to assess the treatment potential for each discrete treatment train at the facility and to obtain representative data on the effluent from each treatment source. Furthermore, effluent limits and dilution credits have been granted for a variety of pollutants that have reasonable potential to cause or contribute to an exceedance in water quality objectives (e.g., copper, zinc, ammonia, etc.). For each treatment train, treatment potential for these pollutants must also be assessed in the Study since existing effluent quality/treatment ability was considered in the development of

the effluent limits and the use of the micro-filtration system was identified as BPTC which supported the justification for granting a mixing zone.

3. **Best Management Practices and Pollution Prevention**

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

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

   a. **Membrane Filtration.** During the term of the past permit cycle, the Discharger has not operated the micro-filtration system full-time and therefore not all effluent discharging from the Facility has received filtration. Effluent from Pond 6 and Pond 7 is treated with extended aeration only. As discussed in Section II, the micro-filtration membrane unit was installed to improve effluent quality and enable an increase in effluent discharge direct from the Facility in the early 2000's (rather than relying on the City of Corning's WWTP for additional treatment). In addition, the micro-filtration unit was to help the Facility handle ammonia-related toxicity occurring during the summer months downstream of Pond 4. Furthermore, when the micro-filtration system was installed, the dissolved air floatation unit was removed from use at the Facility ponds. The DAF unit aided TSS removal during the winter months when lower temperatures lead to reduced bacterial activity and treatment efficiency. In order to allow for complete effluent filtration of solids and to minimize the solids loading and ammonia-related toxicity to the receiving water and to satisfy antidegradation policies (as discussed in Section IV.D.4), the effluent micro-filtration membrane system shall be operated year-round and to the fullest extent practicable.

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

6. **Other Special Provisions – Not Applicable**

7. **Compliance Schedules**

   a. **Compliance Schedule for Discharge Color.** The Central Valley Water Board has received complaints regarding the color of the Sacramento River in the vicinity of the discharge. Wastewater from olive processing is a dark brown color due to the leaching of lignin, tannins, and other organic compounds from the olives. The color of the effluent discharge can cause aesthetic concerns within the receiving water, especially at low flows. Complaints are received almost every year.

   The Discharger provided a Treatment Feasibility Report in October 2010 which evaluated several options to remove color, including chlorination, oxidation with hydrogen peroxide, ozone treatment, and advanced oxidation using ozone and hydrogen peroxide. These alternatives were determined to be infeasible due to increase in salinity (chlorination), ineffectiveness (oxidation with hydrogen peroxide), or cost (ozone treatment and advanced oxidation using ozone and hydrogen peroxide).

   The Discharger conducted a bench-top dilution analysis to determine the dilution ratio necessary for color. The Discharger concluded that a dilution ratio of 75:1 is necessary, which corresponds to a mixing zone size of approximately 600 feet under current conditions. The 2010 Mixing Zone Study recommended several modifications to the diffuser in order to reduce the mixing zone size, including adding Tideflex valves to the ports and extending the diffuser length. The 2010 Mixing Zone Study suggested that these modifications would result in an average

effluent dilution of 75:1 within approximately 40 feet of the diffuser. Based upon the results of the 2010 Treatment Feasibility Report, modifications to the diffuser appears to be the most viable option for reducing color in the discharge.

The color of the effluent is the cause of nuisance conditions in the receiving water. The Basin Plan prohibits conditions that create a nuisance and this Order prohibits nuisance conditions as a result of the discharge and/or its treatment (Discharge Prohibition III.B) Therefore, this Order establishes a compliance schedule for the Discharger to eliminate and/or minimize the nuisance issues related to the color of the discharge.

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. The monitoring frequencies for flow (continuous), BOD_5 (monthly), pH (weekly), TSS (monthly), chemical oxygen demand (monthly), chloride (quarterly), electrical conductivity (weekly), iron (monthly), sodium (quarterly), sulfate (quarterly), and total dissolved solids (weekly) have been retained from Order R5-2007-0166.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. This Order maintains effluent monitoring at location EFF-001. Because the Facility's blended effluent at EFF-001 can at any given time consist of flow from INT-001, INT-002, or INT-003 or a combination thereof, this Order establishes that monitoring at EFF-001 must be performed every time the percentage of Zenon (INT-001) flow changes by 20% or more. This new monitoring requirement at EFF-001 has been implemented so that samples from EFF-001 will at all times be representative of the discharge..
3. Effluent monitoring frequencies and sample types for flow (continuous), BOD_5 (weekly), TSS (weekly), ammonia (weekly), chloride (weekly), chlorine residual (daily when in use), color (monthly), electrical conductivity (weekly), iron (monthly), settleable solids (weekly), standard minerals (annually), temperature (weekly), and total dissolved solids (weekly) have been retained from Order R5-2007-0166 to determine compliance with effluent limitations, where applicable, and characterize the effluent for these parameters.
4. Effluent monitoring for pH has been increased from weekly to daily due to the variable nature of olive process wastewater and the need to determine compliance with effluent limitations.
5. This Order establishes new effluent limitations for copper and zinc. Therefore, this Order establishes monthly monitoring for these parameters to determine compliance with the applicable effluent limitations.

6. As discussed in section IV.C.3.b of this Fact Sheet, reasonable potential cannot be determined for benzo(a)pyrene, bis (2-ethylhexyl) phthalate, or pentachlorophenol. Therefore, this Order requires quarterly monitoring for 2 years to characterize the presence of these parameters in the effluent.

7. The Sacramento River from Red Bluff to Knights Landing is listed as impaired on the 2010 303(d) list for mercury. This Order establishes annual monitoring to characterize the presence of mercury in the effluent.

8. Aluminum is a constituent of concern for discharges in the Central Valley Region. Effluent monitoring data for aluminum is not available. Therefore, this Order establishes quarterly monitoring to characterize the presence of aluminum in the effluent.

9. This Order includes effluent limitations for diazinon and chlorpyrifos based on the applicable TMDL for the Sacramento and Feather Rivers. Therefore, this Order establishes annual monitoring for diazinon and chlorpyrifos to characterize the effluent and determine compliance with the applicable effluent limitations based on the TMDL.

10. This Order establishes monthly monitoring for hardness to ensure that adequate data is available to properly adjust water quality criteria for hardness-based metals.

11. Nitrate is inherently present in olive processing wastewater and monitoring data collected during the term of Order R5-2007-0166 indicates the maximum observed effluent concentration of 9.78 mg/L is just below the applicable Primary MCL of 10 mg/L. Therefore, this Order establishes quarterly monitoring for nitrate to characterize the presence of nitrate in the effluent.

12. 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 quarterly during the third year of the permit term. See Attachment E, Section IX.A for more detailed requirements related to performing priority pollutant monitoring.

13. 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 Department of Public Health (DPH) certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

    Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code § 13372, subd. (a).) The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II) Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order R5-2007-0166, monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Consistent with Order R5-2007-0166, 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. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

b. Monitoring location RSW-003 has not been retained from the previous Order. Downstream receiving water monitoring at monitoring location RSW-002 is sufficient to measure and assess the impacts of the discharge on the receiving water.

c. Monitoring frequencies and sample types for pH (monthly), chloride (monthly), dissolved oxygen (monthly), electrical conductivity (monthly), temperature (monthly), total dissolved solids (monthly), and turbidity (monthly) have been retained from Order R5-2007-0166.

d. This Order includes effluent limitations for copper, zinc, ammonia, and iron calculating based on dilution credits. This Order establishes quarterly upstream receiving water monitoring for these parameters to evaluate assimilative capacity.

e. This Order establishes monthly monitoring for hardness to ensure that adequate data is available to properly adjust water quality criteria for hardness-based metals.

f. 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 monitoring for priority pollutants and other pollutants of concern at Monitoring Location RSW-001 quarterly during the third year of the permit term, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See Attachment E, Section IX.A for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Production Monitoring

Production monitoring is required to evaluate the technology-based effluent limitations for BOD_5 and TSS in accordance with 40 C.F.R. part 407, subpart F.

2. Rainfall and Storm Water Monitoring

Monitoring of the monthly amount of storm water generated and discharged to the treatment ponds is required to ensure proper operation of the ponds. In addition, the rainfall volume is subtracted from the total measured influent flow to determine compliance with Discharge Prohibition III.E (maximum influent flow limit for Facility).

VIII. PUBLIC PARTICIPATION

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

A. Notification of Interested Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through mailings and physical and internet postings.

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/

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 **17 February 2015.**

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:	16,17 April 2015
Time:	8:30 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region Fresno Office 1685 E Street Fresno, CA 93706-2020

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 (530) 224-4845.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Jeremy Pagan at (530) 224-4850.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Ammonia Nitrogen, Total (as N)	mg/L	14.4	0.06	1.98	2.14[1]	1.98[2]	--	--	--	--	Yes (MEC>C)
Benzo(a)pyrene	µg/L	0.2 DNQ	<0.1	0.0044	--	--	0.0044	0.049	--	0.2	Inconclusive[3]
Bis (2-Ethylhexyl) Phthalate	µg/L	2 DNQ	1 DNQ	1.8	--	--	1.8	5.9	--	4	Inconclusive[3]
Chloride	mg/L	3,820	62	230	860[1]	230[4]	--	--	--	250[5]	No[6]
Copper, Total Recoverable	µg/L	89.4	2.2	5.8[7]	8.2[7]	5.8[7]	1,300	--	8.1[7]	1,000[5]	Yes (MEC>C)
Electrical Conductivity @ 25°C	µmhos/cm	8,520[9]	204[9]	230	--	--	--	--	230	900[5]	No[6]
Iron, Total Recoverable	µg/L	2,345[10]	120[11]	300	--	1,000	--	--	300	300[5]	Yes (MEC>C)
Pentachlorophenol	µg/L	1.2 DNQ	<0.2	0.28	5.3	4.0	0.28	8.2	--	1	Inconclusive[3]
Sulfate	mg/L	787[10]	--	250	--	--	--	--	--	250[5]	No[6]
Total Dissolved Solids	mg/L	5,766[10]	139[10]	500	--	--	--	--	--	500[5]	No[6]
Zinc, Total Recoverable	µg/L	41.5	16.3	22[7]	74[7]	74[7]	7,400	26,000	22[7]	5,000[5]	Yes (MEC>C)

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential

General Note: All inorganic concentrations are given as a total recoverable.
Data Range: January 2008 through February 2014
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available
ND = Non-detect
DNQ = Detected by laboratory, but not quantified.

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) See section IV.C.3.b of the Fact Sheet (Attachment F) for a discussion of the RPA results.
(4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(5) Secondary MCL.
(6) See section IV.C.3.a of the Fact Sheet (Attachment F) for a discussion of the RPA results.
(7) Criterion based on design ambient water hardness of 57 mg/L as $CaCO_3$.
(8) Represents the maximum observed annual average concentration for comparison with the Basin Plan objective for electrical conductivity.
(9) Represents the maximum observed annual average concentration or comparison with the Secondary MCL.
(10) Represents monitoring data from the DWR gaging station at Sacramento River at Vina.

ATTACHMENT H – CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations									Final Effluent Limitations	
		HH	CMC	CCC	HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA $Multiplier_{acute}$	LTA_{acute}	ECA $Multiplier_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multiplier_{95}$	$AMEL_{AL}$	MDEL $Multiplier_{99}$	$MDEL_{AL}$	Lowest AMEL	Lowest MDEL
Ammonia Nitrogen, Total (as N)	mg/L	--	2.14	1.98[1]	--	20	20	--	--	--	0.15	6.5	0.57	24	6.5	2.35	15	6.7	44	15	44
Copper, Total Recoverable	µg/L	1,000	8.1[2]	5.8[3]	--	20	20	1,000	2.01	2,010	0.32	40	0.53	41	40	1.55	63	3.11	125	63	125
Zinc, Total Recoverable	µg/L	5,000	22[2]	74[3]	--	20	20	5,000	2.01	10,050	0.32	43	0.53	652	43	1.55	67	3.11	135	67	135

[1] 30-day ammonia criteria.
[2] Basin Plan water quality objective evaluated using a design ambient hardness of 57 mg/L (as $CaCO_3$) and default U.S. EPA acute conversion factor.
[3] Water quality criteria evaluated using a design ambient hardness of 57 mg/L (as $CaCO_3$) and default U.S. EPA chronic conversion factor.