CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2011-0036
NPDES NO. CA0004821

WASTE DISCHARGE REQUIREMENTS FOR THE PACTIV CORPORATION MOLDED PULP MILL TEHAMA COUNTY

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	Pactiv Corporation
Name of Facility	Molded Pulp Mill
Facility Address	1000 Diamond Avenue, Red Bluff, CA 96080
	Tehama County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by Pactiv Corporation from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Process wastewater and non-contact cooling and sealing water	40° 9’ 10” N	122° 12’ 20” W	Sacramento River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**10 June 2011**
This Order shall become effective on:	**10 June 2011**
This Order shall expire on:	**01 June 2016**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date**

I, **Pamela C. Creedon**, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **10 June 2011**.

Original signed by

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	Pactiv Corporation
Name of Facility	Molded Pulp Mill
Facility Address	1000 Diamond Avenue
	Red Bluff, CA 96080
	Tehama County
Facility Contact, Title, and Phone	Mitch Brehm, Plant Manager, (530) 528-3333
Mailing Address	1000 Diamond Avenue, P.O. Box 1500, Red Bluff, CA 96080
Type of Facility	Industrial (SIC Code 2679 for Converted Paper)
Facility Design Flow	2.7 million gallons per day (MGD)

II. FINDINGS

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

A. Background. Pactiv Corporation (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2004-0124 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0004821. The Discharger submitted a Report of Waste Discharge, dated 11 March 2009, and applied for a NPDES permit renewal to discharge up to 2.7 MGD of treated process wastewater and untreated non-contact cooling and sealing water from their Molded Pulp Mill, hereinafter Facility. The application was deemed complete on 23 June 2010.

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. Facility Description. The Discharger owns and operates a molded pulp processing plant, wastewater treatment system, and disposal conveyance lines. The current treatment train utilizes primary clarification, aeration, coagulation, and final clarification. Three settling ponds (i.e., Ponds 1 through 3) provide primary clarification, only one of which is utilized at any given time on a rotating basis. Process wastewater is fed to a settling pond until it reaches its solids holding capacity, at which time it is then rotated out of service. A fourth pond (Pond 4) is held in reserve for emergency backup. Wastewater from the settling ponds flows by gravity to an aeration stabilization pond. Coagulant is added to effluent from the aeration pond prior to being pumped to the final clarifier. Effluent from the final clarifier is combined with untreated non-contact cooling and sealing water and then discharged to the Sacramento River.

The Discharger may plan to discontinue use of Ponds 1 through 3 and modify Pond 4 for wastewater treatment during this permit term. Modification of Pond 4 will entail dividing it into three ponds—two of which will be used as settling ponds and one which will be repurposed as an aeration pond.

The Facility discharges an average daily flow of 0.5 MGD of treated process wastewater combined with an average daily flow of 0.9 MGD of untreated non-contact cooling and sealing water at Discharge Point No. 001 (see table on cover page) to the Sacramento River, a water of the United States, within the Sacramento – Lower Thomes watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (CWC; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional 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 Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through J are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 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 Secondary Fiber Non-Deink Subcategory of the Pulp, Paper, and Paperboard Point Source Category (40 CFR Part 430, Subpart J). A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.

G. Water Quality-Based Effluent Limitations (WQBELs). Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

40 CFR 122.44(d)(1)(i) mandates 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, WQBELs must be established using: (1) USEPA 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 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan*, *Fourth Edition (Revised September 2009),* 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. In addition, the Basin Plan implements State Water Resources Control Board (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. Beneficial uses applicable to the Sacramento River are as follows:

Table 5. Basin Plan Beneficial Uses

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

The Basin Plan includes a 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 CFR 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 Sacramento River from Red Bluff to Knights Landing in the vicinity of the discharge is listed as a WQLS for DDT, dieldrin, mercury, polychlorinated biphenyls (PCBs), and unknown toxicity in the 303(d) list of impaired water bodies.

Requirements of this Order implement the Basin Plan.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA 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 water quality criteria for priority pollutants.

J. **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 28 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by USEPA 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.

K. **Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. The Regional Water Board, however, is not required to include a compliance schedule, but may issue a Time Schedule Order pursuant to CWC section 13300 or a Cease and Desist Order pursuant to CWC section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Compliance Schedule Policy, should consider feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limit based on the objective or criteria.

The Compliance Schedule Policy and the SIP do not allow compliance schedules for priority pollutants beyond 18 May 2010, except for new or more stringent priority pollutant criteria adopted by USEPA after 17 December 2008.

Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter, interim milestones and compliance reporting within 14 days after each interim milestone. The permit may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures. This Order includes a compliance schedule

for final groundwater limitations and exemption from Title 27 for treatment of process wastewater in the operational pond. A detailed discussion of the basis for the compliance schedule is included in the Fact Sheet.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. (40 CFR 131.21 and 65 FR 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD_5, flow, pH, and TSS. The WQBELs consist of restrictions on copper, mercury, pH, settleable solids, and zinc. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements

WQBELs have been scientifically 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 WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. 40 CFR 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 No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order No. R5-2004-0124.

P. Endangered Species Act. 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 sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 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.

Q. Monitoring and Reporting. 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorize the Regional 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.

R. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in sections V.B, VI.C.2.b, and VI.C.7.a of this Order 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.

T. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

U. Consideration of Public Comment. The Regional 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 (Attachment F).

THEREFORE, IT IS HEREBY ORDERED, that Order No. R5-2004-0124 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 CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings 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 CWC.

D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and 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.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – Discharge Point No. 001

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program:

Table 6. Final Effluent Limitations – Discharge Point No. 001

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants					
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L[1]	--	11.4	--	--
	lbs/day[1]	138	264	--	--
pH	standard units	--	--	6.5	8.5
Total Suspended Solids	mg/L[1]	--	28.5	--	--
	lbs/day	348	648	--	--
Priority Pollutants					
Copper, Total Recoverable	µg/L	3.1	6.1	--	--
Zinc, Total Recoverable	µg/L	10	17	--	--
Non-Conventional Pollutants					
Settleable Solids	mL/L	0.1	0.2	--	--

[1] Concentration-based effluent limitation based on a maximum capacity of 2.7 MGD.

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. Maximum Daily Discharge Flow. The maximum daily discharge flow shall not exceed 2.7 MGD.

d. Mercury, Total Recoverable. The total annual mass discharge of total mercury shall not exceed 0.0065 lbs.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. 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. From 1 June to 31 August, the dissolved oxygen concentration to be reduced below 9.0 mg/L. When natural conditions lower dissolved oxygen below this level, the concentrations shall be maintained at or above 95 percent of saturation.

   b. From 1 September to 31 May,

      i. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;

      ii. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

      iii. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.

9. **Pesticides:**

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;

   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;

   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);

   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;

   f. Pesticides to be present in concentration in excess of the maximum contaminant levels 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 maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

13. **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.

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

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

16. **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.

17. **Temperature.** The natural temperature to be increased by more than 5°F or to be elevated above 56°F during periods when temperature increases will be detrimental to the fishery, whichever is more restrictive.

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

19. **Turbidity.** The turbidity to increase as follows:

    a. More than 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;

    b. More than 1 NTU where natural turbidity is between 1 and 5 NTUs;

    c. More than 20 percent where natural turbidity is between 5 and 50 NTUs;

    d. More than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

    e. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

1. Discharges from the Facility shall not cause underlying groundwater or groundwater downgradient of the Facility to:

    a. Contain waste constituents in concentrations statistically greater than background water quality or ground water objectives, whichever is greater, except that total coliform organisms shall not exceed 2.2 MPN/100 mL over any 7-day period.

    b. Exhibit a pH of less than 6.5 or greater than 8.5.

    c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions (federal NPDES standard conditions from 40 CFR Part 122) included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

    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:

- *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.

- *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.

- *Change in sludge use or disposal practice.* Under 40 CFR 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 Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional 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 Regional 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 USEPA 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 Regional 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 Regional Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA 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

j. The Discharger, upon written request of the Regional 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 Regional 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 Regional 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 Regional 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 Regional 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 Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a 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. (CWC section 1211).

o. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D section V.E.1. [40 CFR 122.41(l)(6)(i)].

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 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 Regional 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 Regional 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 CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including:

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, such as completion of the anticipated revised mixing zone study for zinc, copper and chronic whole effluent toxicity.

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

c. Mercury. If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Regional 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 interim 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 new 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 CTR criteria for applicable priority pollutant 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. **Dilution/Mixing Zone Study.** In order to allow a mixing zone for chronic whole effluent toxicity, zinc and copper, the Discharger must submit an approved Dilution/Mixing Zone Study, in accordance with a workplan submitted to and approved by the Regional Water Board, which meets all of the requirements of Section 1.4.2.2 of the SIP. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, the Regional Water Board may reopen this Order to modify chronic whole effluent toxicity requirements, zinc and copper limits based on an appropriate dilution factor.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity.** 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 the Monitoring and Reporting Program (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits toxicity, as described in subsection ii. below, the Discharger is required to initiate a TRE in accordance with an approved TRE Workplan, 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 effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Initial Investigative TRE Workplan.** Within 90 days of the effective date of this Order, the Discharger shall submit to the Regional Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer. This should be a one to two page document including, at a minimum:

(a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;

(b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and

(c) A discussion of who will conduct the Toxicity Identification Evaluation (TIE), if necessary (e.g., an in-house expert or outside contractor).

ii. Accelerated Monitoring and TRE Initiation. When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, 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.

iii. Numeric Toxicity Monitoring Trigger. The numeric toxicity monitoring trigger to initiate a TRE is > 1 TU_C (where TU_C = 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 when the effluent exhibits toxicity.

iv. 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 (4) chronic toxicity tests conducted once every 2 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 (4) 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 evidence 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 (4) 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

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

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

(3) A schedule for these actions.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Regional Water Board a TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance[1].

b. Groundwater Monitoring. To determine compliance with Groundwater Limitations V.B, the Discharger shall monitor groundwater in accordance with section VIII.B of the MRP (Attachment E) and ensure there are one or more background monitoring wells and a sufficient number of designated monitoring wells down gradient of the operational pond that may release waste constituents to groundwater. All monitoring wells shall comply with the appropriate standards as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC section 13801.

3. Best Management Practices and Pollution Prevention

a. Pollutant Minimization Program (PMP). The Discharger shall develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either: (1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or (2) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting

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

protocols described in the Monitoring and Reporting Program (Attachment E, section X.B.4).

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

i. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

ii. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

v. An annual status report that shall be sent to the Regional Water Board including:

(a) All PMP monitoring results for the previous year;

(b) A list of potential sources of the reportable priority pollutant(s);

(c) A summary of all actions undertaken pursuant to the control strategy; and

(d) A description of actions to be taken in the following year.

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

c. 2,3,7,8-TCDD and Other Dioxin and Furan Congeners Source Evaluation and Minimization Plan. The Discharger shall prepare a 2,3,7,8-TCDD and other dioxin and furan congeners evaluation and minimization plan to address sources of detectable dioxins (1,2,3,4,6,7,8-HpCDD and OCDD) from the Facility. The plan shall be completed and submitted to the Regional Water Board within 1 year of the adoption date of this Order for review and approval by the Executive Officer.

4. Construction, Operation and Maintenance Specifications

a. Treatment Pond Operating Requirements

i. Neither discharge nor treatment shall create a nuisance or pollution as defined in CWC section 13050.

ii. Objectionable odors originating at the Facility shall not be perceivable beyond the limits of the property owned by the Discharger.

iii. The discharge shall not cause the degradation of any water supply.

iv. The dissolved oxygen content of the wastewater treatment discharge shall not be less than 1.0 mg/L in any 24-hour period.

v. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

(a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

(b) Weeds shall be minimized.

(c) Dead algae, vegetation, and debris shall not accumulate on the water surface.

vi. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

vii. Domestic waste shall remain underground at all times.

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. Compliance Schedules for Final Groundwater Limitations and Exemption from Title 27 for Treatment of Process Wastewater in the Operational Pond. This Order requires compliance with the final groundwater limitations by **10 June 2013.** Compliance with the groundwater limitations will result in the treatment of process wastewater in the operational pond meeting the preconditions for an exemption from Title 27. Therefore, this compliance schedule temporarily exempts the Discharger from compliance with Title 27 requirements to allow time for the Discharger to meet all preconditions for an exemption from Title 27. The Discharger shall comply with the following time schedule to ensure compliance with the final groundwater limitations and to demonstrate the infiltration of process wastewater from the operational pond to groundwater is in compliance with the Basin Plan:

Task	Compliance Date
i. Submit Method of Compliance Workplan/Schedule	**Within 3 months** following Order effective date
ii. Submit Technical Report summarizing groundwater monitoring results for the operational pond, and provide proof of Title 27 exemption analysis	**Within 21 months** following implementation of Task i

b. Compliance Schedule for Assessment of Previous Pond Discharges. The Discharger shall submit a Workplan/Schedule for investigating the previous pond discharges to determine if they have impacted groundwater. This Workplan/Schedule should describe the methods that will used to determine if groundwater has been impacted from past discharges, and recommendations. Any remedial actions required to address any impacts must be completed in accordance with a subsequent work plan and time schedule approved by the Central Valley Water Board Executive Officer. The Discharger shall comply with the following time schedule to ensure compliance with this assessment:

Task	Compliance Date
i. Submit Method of Compliance Workplan/Schedule	**Within 1 year** following Order effective date
ii. Submit Technical Report summarizing investigation report, and recommending additional measures as necessary	**Within 2 years** following implementation of Task i

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Section IV.A.1.a). Compliance with the final effluent limitations for BOD_5 and TSS required in Limitations and Discharge Requirements section IV.A.1.a shall be ascertained by 24-hour composite samples.

B. Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.d). The procedures for calculating mass loadings are as follows:

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

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

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 1 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.

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 USEPA 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 CWC 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 40 CFR Part 136, Attachment B, revised as of 3 July 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.

No Observable Effects Concentration (NOEC)
The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. The NOEC is determined using hypothesis testing.

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.

Operational Pond
A pond that will be utilized for storage and/or treatment of wastewater, after the compliance period in Section VI.C.7.a.

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 Regional 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 CWC 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 or Regional Water Board.

Reporting Level (RL)
RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

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 Regional Water Board Basin Plan.

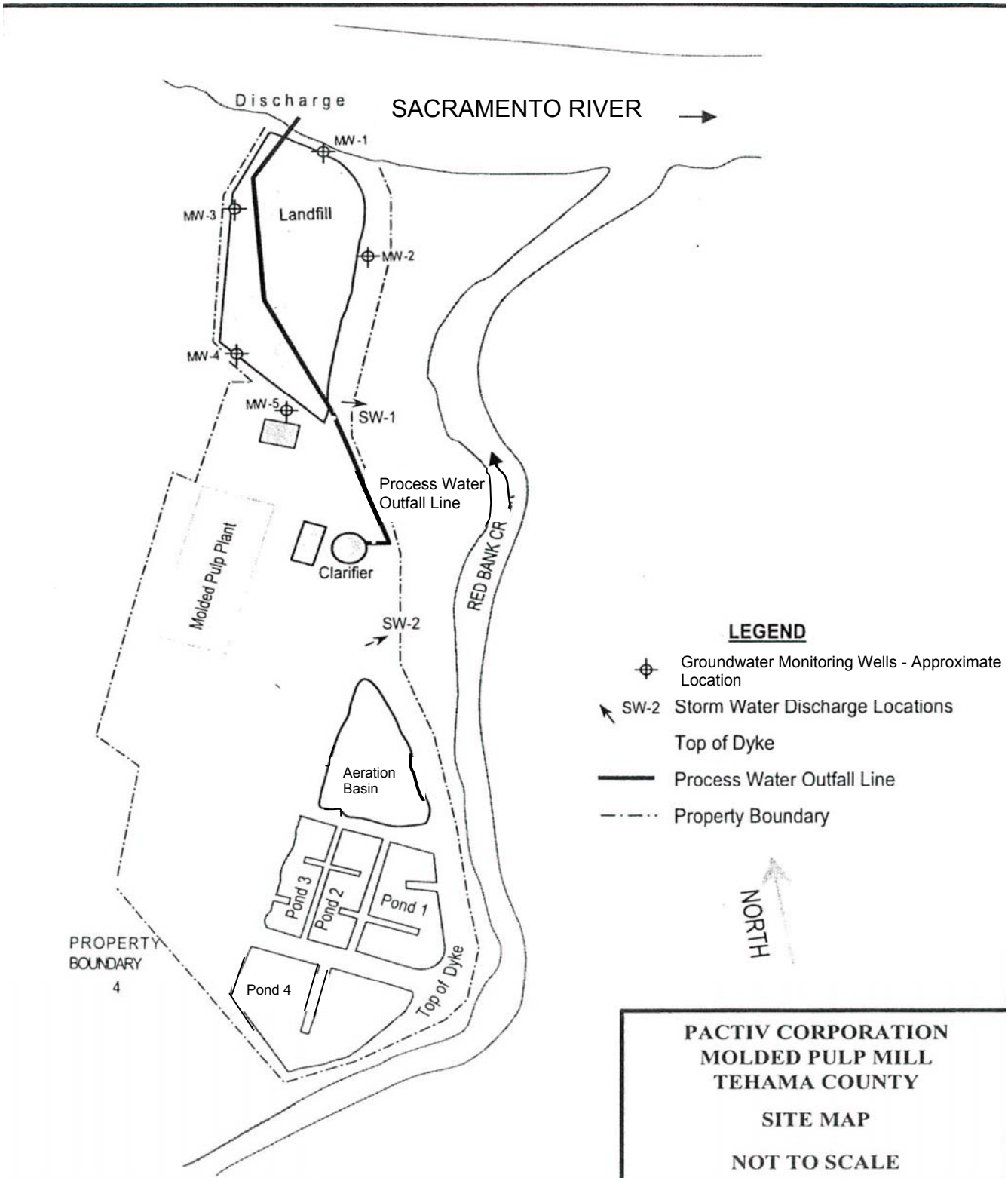
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

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

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

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

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Existing Treatment System

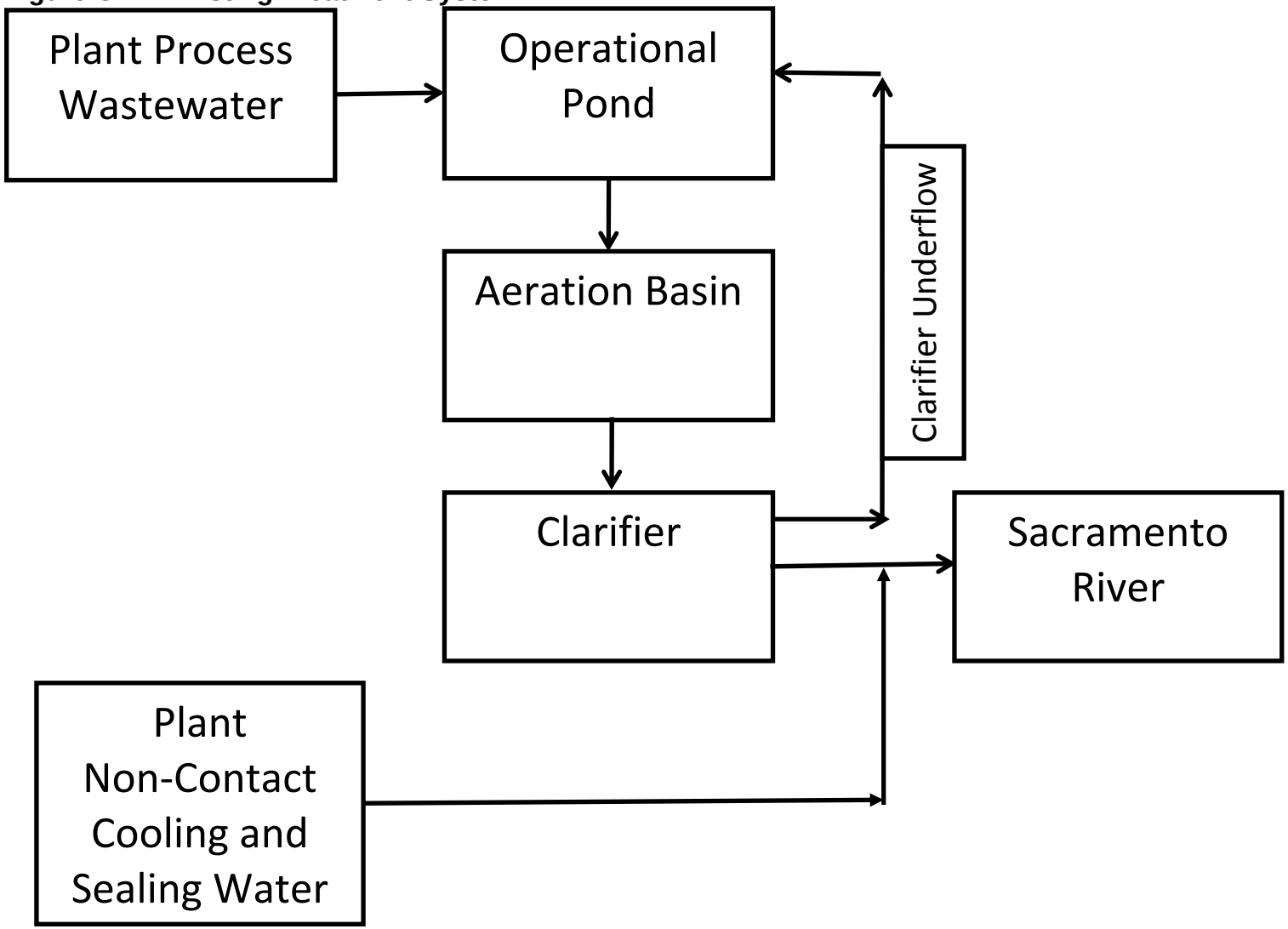
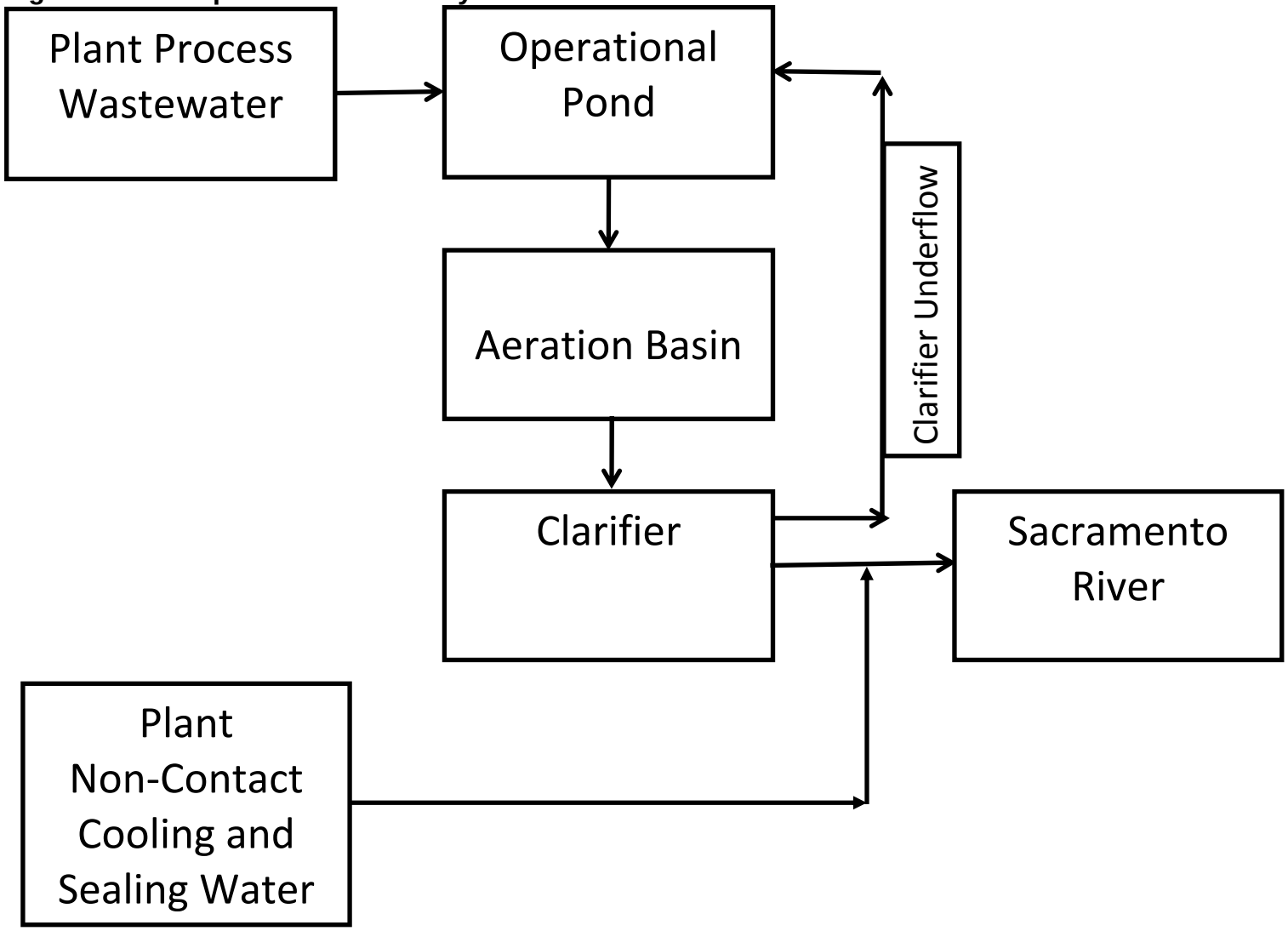


Figure C-2. Proposed Treatment System



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a).)

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 CFR 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 CFR 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 CFR 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 CFR 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR 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 CFR 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), 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 (40 CFR 122.41(i); CWC section 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 (40 CFR 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 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 CFR 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 CFR 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 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 CFR 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR 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 CFR 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 CFR 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 CFR 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 CFR 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 CFR 122.41(n)(3)):

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

b. The permitted facility was, at the time, being properly operated (40 CFR 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 CFR 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR 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 CFR 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 CFR 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 CFR 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional 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 CWC. (40 CFR 122.41(l)(3) and 122.61.)

III. STANDARD PROVISIONS – MONITORING

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

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 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 5 years (or longer as required by 40 CFR 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 Regional Water Board Executive Officer at any time. (40 CFR 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA 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 Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA 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 CFR 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 CFR 122.22(a)(1).)

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA 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 CFR 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

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 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 Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 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 CFR 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 CFR 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 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 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR 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 CFR 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 CFR 122.41(l)(5).)

E. Two-Hour and Twenty-Four Hour Reporting

1. The Discharger shall notify the Office of Emergency Services any noncompliance that may endanger health or the environment within 2-hours from the time the Discharger becomes aware of the circumstances. Any information shall be provided by telephone or fax 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 CFR 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A).)

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

3. The Regional 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 CFR 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional 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 CFR 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 40 CFR 122.29(b) (40 CFR 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 40 CFR 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 CFR 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 CFR 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR 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 CFR 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 Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, 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 Regional Water Board as soon as they know or have reason to believe (40 CFR 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 CFR 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 CFR 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 CFR 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with 40 CFR 122.44(f). (40 CFR 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 CFR 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 CFR 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the 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 this Regional 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; formerly the Department of Health Services). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board. In the event a certified laboratory is not available to the Discharger, 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 must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board. The Discharger shall institute a Quality Assurance-Quality Control Program for any onsite field measurements such as pH, turbidity, temperature and residual chlorine. A manual containing the steps followed in this program must be kept onsite and shall be available for inspection by Regional 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 USEPA guidelines or to procedures approved by the Regional 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 CWC section 13176, and must include quality assurance/quality control data with their reports.

G. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

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

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

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	EFF-001	Downstream from the last connection through which treated process wastewater and non-contact cooling and sealing water can be admitted into the outfall. Samples may be collected from "Manhole 11" immediately downstream of the clarifier.
--	LND-001	Location where wastewater can be monitored in Pond 1.
--	LND -002	Location where wastewater can be monitored in Pond 2.
--	LND -003	Location where wastewater can be monitored in Pond 3.
--	LND -004	Location where wastewater can be monitored in Pond 4.
--	LND -005	Location where wastewater can be monitored in Aeration Pond
--	RSW-001	In the Sacramento River, immediately upstream from the point of discharge.
--	RSW-002	In the Sacramento River, within 30 feet downstream of the point of discharge.
--	GW-001	Groundwater monitoring well downgradient of the Operational Pond.
--	GW-002	Groundwater monitoring well upgradient of the Operational Pond.
--	GW-003	Groundwater monitoring well downgradient of the Operational Pond.

III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor the combined treated process wastewater and non-contact cooling and sealing water at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-2. Effluent Monitoring – Monitoring Location EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	[1]
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-Hr Composite	1/Week	[1]
	lbs/day	Calculate	1/Week	--

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	standard units	Grab	1/Week	[1]
Total Suspended Solids	mg/L	24-Hr Composite	1/Week	[1]
	lbs/day	Calculate	1/Week	--
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month	[1,2]
Mercury, Total Recoverable	µg/L	Grab	1/Month	[1,2,3]
Pentachlorophenol	µg/L	Grab	1/Quarter[4]	[1,2]
Zinc, Total Recoverable	µg/L	Grab	1/Month	[1,2]
Priority Pollutants[5]	µg/L	24-hr Composite[6]	[7]	[1,2,8]
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month	[1]
Settleable Solids	mL/L	Grab	1/Week	[1]
TCDD-Equivalents[9]	pg/L	Grab	2/Year[4]	[1]
Temperature	°F	Meter	Continuous	[1]
Total Dissolved Solids	mg/L	Grab	1/Month	[1]

1 Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

2 For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

3 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 method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.

4 Monitoring shall be conducted twice during the third year following the effective date of this Order.

5 See List of Priority Pollutants and Other Pollutants of Concern in Attachment I.

6 Volatile constituents shall be sampled in accordance with 40 CFR Part 136.

7 Priority pollutants and other constituents of concern shall be sampled semi-annually during the third year of the permit term following the date of permit adoption at Monitoring Location EFF-001, and shall be conducted concurrently with upstream receiving water monitoring for priority pollutants, hardness (as $CaCO_3$), and pH. The Discharger is not required to conduct effluent monitoring for priority pollutants that have already been sampled in a given semi-annual period, as required in Table E-2. See Attachment I for more detailed requirements related to performing the priority pollutant monitoring.

8 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.

9 TCDD-equivalents shall include all 17 of the 2,3,7,8 TCDD dioxin congeners as listed in section 3 of the SIP. See Attachment J for more detailed requirements related to performing the TCDD-equivalents monitoring.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. *Monitoring Frequency* – The Discharger shall perform acute toxicity testing twice per month.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be flow proportional 24-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at effluent 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 be flow proportional 24-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at effluent Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in this Monitoring and Reporting Program.

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

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

   - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and

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

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

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

7. *Dilutions* – For regular and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The testing may be performed using 100% effluent and two controls. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-3, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic). If the receiving water is toxic, laboratory control water may be used as the diluent, in which case, the receiving water should still be sampled and tested to provide evidence of its toxicity.

Table E-3. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

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 Regional 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 Regional 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.

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Locations LND-001 through LND-005

1. The Discharger shall monitor the settling ponds and aeration pond at Monitoring Locations LND-001 through LND-005 as follows when water is present in the ponds:

Table E-4. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard	Feet	Measure[1]	1/Week	[2]
Dissolved Oxygen	mg/L	Grab	1/Week[3]	[2,4]
Odors	--	Observation	1/Week	[2]
pH	standard units	Grab	1/Week[3]	[2,4]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week[3]	[2,4]

1 To be measured vertically to the lowest point of overflow.
2 Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
3 Sample may be collected at Monitoring Location EFF-001.
4 A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

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-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/Week	[1,2]
Priority Pollutants				
Priority Pollutants[4]	µg/L	Grab	[5]	[1,3,6]
Copper	ug/L	Grab	1/Month	[1,3]
Zinc	ug/L	Grab	1/Month	[1,3]
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1,2]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month	[1,7]
Temperature	°F (°C)	Grab	1/Week	[1,2]
Turbidity	NTU	Grab	1/Week	[1,2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[2] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.
[4] See List of Priority Pollutants and Other Pollutants of Concern in Attachment I.
[5] Priority pollutants shall be sampled semi-annually at RSW-001 during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for priority pollutants. See Attachment I for more detailed requirements related to performing the priority pollutant monitoring.
[6] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the receiving water, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
[7] Samples shall be collected on the same date as the effluent metals and priority pollutant samples.

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

Table E-6. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/Week	[1,2]
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1,2]
Temperature	°F (°C)	Grab	1/Week	[1,2]
Turbidity	NTU	Grab	1/Week	[1,2]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[2] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

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

a. Floating or suspended matter;
b. Discoloration;
c. Bottom deposits;
d. Aquatic life;

e. Visible films, sheens, or coatings;
f. Fungi, slimes, or objectionable growths; and
g. Potential nuisance conditions.

B. Monitoring Locations

1. Prior to construction and/or sampling of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for approval. Once installed, all new wells shall be added to the monitoring network and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved USEPA methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

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

Table E-7. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	±0.01 feet	Measurement	1/Quarter	--
Groundwater Elevation[1]	±0.01 feet	Calculated	1/Quarter	--
Gradient	feet/feet	Calculated	1/Quarter	--
Gradient Direction	degrees	Calculated	1/Quarter	--
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	[2]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[2]
Fixed Dissolved Solids	mg/L	Grab	1/Quarter	[2]
pH	standard units	Grab	1/Quarter	[2]
Total Coliform Organisms	MPN/100 mL	Grab	1/Quarter	[2]
Total Nitrogen	mg/L	Grab	1/Quarter	[2]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter	[2]
Ammonia (as NH_4)	mg/L	Grab	1/Quarter	[2]
Total Kjeldahl Nitrogen	mg/L	Grab	1/Quarter	[2]
Standard Minerals[3]	µg/L	Grab	1/Year	[2]

[1] Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well. The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow, which must be reported.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[3] Standard minerals shall consist of the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).

IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. Upon written request of the Regional 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 Regional 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 Regional Water Board by letter when it returns to compliance with the compliance time schedule.

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

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State Water Board or the Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this Monitoring and Reporting Program under sections III through IX. The Discharger shall submit monthly SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. 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-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following month of sampling.
1/Week	Permit effective date	Sunday through Saturday	First day of second calendar month following month of sampling.
2/Month	Permit effective date	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling.
1/Month	Permit effective date	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling.
1/Quarter	Permit effective date	1 January through 1 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
1/Year	Permit effective date	1 January through 31 December	1 February

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR 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 reported ML 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 as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). 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 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. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations 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).

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

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

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

7. The Discharger shall submit SMRs in accordance with the following requirements:

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

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

c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board
Central Valley Region
NPDES South Regulatory Unit
415 Knollcrest Drive, Suite 100
Redding, CA 96002

C. Discharge Monitoring Reports (DMRs)

1. As described in section X.B.1 above, at any time during the term of this permit, the State Water Board or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. 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 of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

2. Within 60 days of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP.

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

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

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

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

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment system 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 Regional 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 the Findings in section II 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	**5A522001004**
Discharger	Pactiv Corporation
Name of Facility	Molded Pulp Mill
Facility Address	1000 Diamond Avenue
	Red Bluff, CA 96080
	Tehama County
Facility Contact, Title and Phone	Mitch Brehm, Plant Manager, (530) 528-3333
Authorized Person to Sign and Submit Reports	Mitch Brehm, Plant Manager, (530) 528-3333
Mailing Address	1000 Diamond Avenue, P.O. Box 1500, Red Bluff, CA 96080
Billing Address	Same as Mailing Address
Type of Facility	Industrial (SIC Code 2679 for Converted Paper)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	B
Pretreatment Program	Not applicable
Reclamation Requirements	Not applicable
Facility Permitted Flow	2.7 million gallons per day (MGD)
Facility Design Flow	2.7 MGD
Watershed	Sacramento – Lower Thomes
Receiving Water	Sacramento River
Receiving Water Type	Inland surface water

A. Pactiv Corporation (hereinafter Discharger) is the owner and operator of a Molded Pulp Mill (hereinafter Facility).

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

B. The Facility discharges wastewater to the Sacramento River, a water of the United States, and is currently regulated by Order No. R5-2004-0124 which was adopted on 10 September 2004 and expired on 1 September 2009. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 11 March 2009. Supplemental information was requested and received on 25 May 2010. A site visit was conducted on 25 May 2010 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger owns and operates a molded pulp processing plant, wastewater treatment system, and disposal conveyance lines. The plant employs approximately 95 people and operates 24 hours a day except during holidays. The business has been in operation since 1957.

Historically, the plant had produced three product lines: paper plates, egg cartons, and other molded paper products (e.g., berry baskets). Production was reduced by 65 percent with the discontinuation of the latter two lines in May 2004 and September 2003, respectively. Currently, only paper plates are produced at the Facility. The Discharger does not plan to increase production during the term of this Order.

The plant currently uses approximately 33 tons per day of pulp fiber to manufacture approximately 30 tons per day of aqueous/fatty food grade paper plates. Roughly 65 percent of this fiber is from secondary sources. Paper plates manufacturing (also called Duplex manufacturing) is a two-part process consisting of a top liner and a back liner. The top liner is a blend of purchased virgin pulp, which is defibered, refined, and whitened with bluing agent, a blue liquid pigment. It is further modified with chemicals that provide oil and water holdout properties. The back liner consists of white blank news, the unprinted cuttings and sheets of white newsprint or other uncoated white groundwood paper. This fiber is mixed with hot water, defibered, and further modified with chemicals that provide water holdout properties. The top and back liners have separate molding drums, vats, and water systems. Plates are formed when a wire form enters each vat and vacuum is applied. The top liner and bottom liners subsequently are joined between dies and dried. Chemicals used in the manufacturing process include retention aids to retain fines and improve drainage, chemicals to provide water resistance (i.e., water hold-out properties), and pigments.

Process and domestic water is supplied by two water wells operated by the Discharger. The wells, designated No. 1 and No. 3, were installed in 1956 and 1960, respectively. Both are greater than 200 feet in depth. Well No. 1 operates continuously and Well No. 3 provides makeup water. Well No. 2 is also located on the Discharger's property, but is not used by the Facility.

A. Description of Wastewater and Biosolids Treatment or Controls

Process wastewater flows from two sumps into one of three primary settling ponds which are approximately 15 to 20 feet deep. The retention time for wastewater in each settling pond is 5 to 6 days. When a settling pond is filled with solids, the discharge is re-routed to the next pond in the series and the filled pond is taken out of service for solids drying. Each pond is used for approximately 18 months before it is filled and taken out of service. A fourth pond is only used in emergency situations. Pond 1 has a volume of 8.1 million gallons and an area of 3 acres. Ponds 2 and 3 each have a volume of 4.6 million gallons and an area of 1.75 acres. Pond 4 has a volume of 13.1 million gallons and an area of 6.7 acres. Dry sludge from the settling ponds is disposed of at an on-site Class III landfill approximately every 2 years. The production of sludge is approximately 2,500-cubic yards per year or 5,000-cubic yards per pond.

Partially settled wastewater from the settling ponds flows by gravity to the aeration stabilization pond, which has a volume of 16.7 million gallons and an area of 5.1 acres. The retention time for wastewater in the aeration pond is 5 days. The aeration pond contains three 40-horsepower aerators and one 15-horsepower aerator, which are distributed around the pond. Two solar powered aerators with 110 volt back-up were installed in 2001 and upgraded in January 2004.

From the aeration pond, effluent is pumped to a 75-foot diameter, 400,000 gallon clarifier. The retention time for wastewater in the clarifier is approximately 12 hours. Polymers are added to the effluent prior to entering the clarifier to aid in the settling process. Clarifier sludge is returned to the settling ponds inlet stream.

Effluent from the final clarifier is combined with untreated non-contact cooling and sealing water and then discharged to the Sacramento River at Discharge Point No. 001. The Facility discharges an average daily flow of 0.5 MGD of treated process wastewater and 0.9 MGD of untreated non-contact cooling and sealing water for a total average daily flow of 1.4 MGD. The design flow rate is 2.7 MGD.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 33, T27N, R3W, MDB&M, as shown in Attachment B, a part of this Order.

2. The Facility is located on 107 acres owned by the Discharger and approximately 4 acres leased from Meyers Motels located west of the Discharger's property. The leased property consists of parking and a 22,000 square foot building used for storing equipment. The site is bound on the north by the Sacramento River, on the south by a railroad spur and undeveloped property, on the east by Red Bank Creek, and on the west by industrial land where a natural gas-fired power plant and an abandoned sawmill are located. The Facility is located on the south bank of the Sacramento River approximately ½ mile upstream of the Red Bluff Diversion Dam.

3. Treated process wastewater and untreated non-contact cooling and sealing water is discharged at Discharge Point No. 001 to the Sacramento River, a water of the United States at a point latitude 40° 09' 10" N and longitude 122° 12' 20" W.

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

Effluent limitations contained in Order No. R5-2004-0124 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2004-0124 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From May 2007 To April 2010)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	2.7	--	--	2.5
Biochemical Oxygen Demand (5-day @ 20 ºC)	mg/L	--	--	11.4[1]	--	--	7.3
	lbs/day	138	--	264	54	--	116
Total Suspended Solids	mg/L	--	--	28.5[1]	--	--	11
	lbs/day	348	--	648	95	--	175
pH	standard units	--	--	6.0 – 9.0	--	--	7.1 – 8.6
Settleable Solids	mL/L	0.1	--	0.2	0.05	--	0.2
Acute Toxicity	% Survival	--	--	70[2]/90[3]	--	--	100[4]
Zinc, Total Recoverable	µg/L	34	--	68	14	--	14

[1] Based on maximum capacity of 2.7 MGD. Concentration-based effluent limitation is flow dependent.
[2] Minimum for any one bioassay.
[3] Median for three or more bioassays.
[4] Minimum observed percent survival.

D. Compliance Summary

1. A compliance inspection of the Facility was conducted on 24 May 2005. The following is a summary of the major findings from the inspection report:

   a. The chain-of-custody log, which also serves as the sample analysis log for in-house analyses, records a time but does not indicate whether the time is of sample collection or analysis. The Facility representative indicated that the time recorded was the time of analysis. Holding times could not be verified for time-sensitive parameters. The Facility representative indicated that a field meter is used at the discharge point to measure pH and that grab samples for pH are collected for analysis in the laboratory. The laboratory result for pH was the only

value reported on the self-monitoring reports (SMRs). The log does not indicate if the initials recorded in the log belong to the individual conducting the analysis, collecting the sample, or both.

b. The dates of analysis for grab samples reported on the SMR do not match those on lab sheets. Results have typically been reported 1 day prior to the actual day of sampling and analysis. The Facility representative indicated that grab samples are collected at the same time 24-hour composite samples are completed, usually in the morning. Composite samples are reported for the day on which the sample collection begins. For consistency, the laboratory technician had been reporting the grab samples on the same day.

c. Transcription errors were noted on the laboratory and SMR records for total suspended solids (TSS) on 13 April 2005, for 5-day biochemical oxygen demand (BOD_5) on 22 October 2004, and settleable solids on 22 December 2004.

d. The effluent flow meter used for reporting purposes had not been calibrated in recent years. The Facility representative could not recall when or if the meter had been calibrated since installation, nor could they produce the records to that effect. Facility staff does not conduct periodic cross-checks between the meter reading and the value obtained from the weir flow tables.

2. A compliance inspection of the Facility was conducted on 26 June 2008. The following is a summary of the major findings from the inspection report:

a. Flow exiting the plant is measured using an in-line magmeter. Because it is costly to calibrate magmeters after installation, Regional Water Board staff recommended an alternative method of installing redundant in-line meters where, as soon as readings between the two meters start to diverge, the Discharger is able to treat the measured discharge results as being suspect until corrective actions can be made. Regional Water Board staff recommended the current flow measurement devices be designed to allow redundancy in the event of instrument malfunction or damage.

b. As the wastewater exits the settling ponds and enters the aeration pond, a slight hydrogen sulfide odor was noticeable. According to the Facility representative, no recent complaints were received in regards to this or any other odor exiting the Facility.

c. The treated effluent exiting the clarifier runs through a weir box where flow, temperature, and pH are quantified. The weir box is equipped with a bubbler gauge to quantify stage inside of the weir box. No staff gauge was present and according to the Facility representative, manual measurements are not taken. Moreover, regular calibration of the bubble gauge is not performed. Non-contact cooling and sealing water is discharged via a pipe into the top of the weir box. Due to the added turbulence caused by the discharge pipe, laminar flow does not exist in the weir, which likely has an adverse effect on flow measurement and

accuracy. Regional Water Board staff recommended that the pipe be relocated to better allow more stable, laminar flows across the weir plate.

d. Algae bloom and scale was observed within the weir box and on the weir plate. Regional Water Board staff recommended cleaning and maintenance of the primary weir exiting the clarifier to prevent the buildup of algae and scale.

E. Planned Changes

Order No. R5-2004-0124 required the Discharger to submit a *Process Wastewater Evaluation and Treatment Report* identifying best practicable treatment and control (BPTC) to prevent the infiltration to groundwater of pollutants that could impact groundwater. The Discharger conducted a pond liner assessment on Ponds 1 through 4 and determined that all of the ponds were constructed with a clay liner and were capped with gravel, presumably to provide a working surface for heavy equipment during removal of solids. Ponds 1 through 3 have been utilized for several years, and have been emptied many times. Pond 4, however, has never been used, and the pond liner assessment found that the clay liner in Pond 4 is of much higher quality than the liners in Ponds 1 through 3. The Discharger may plan to modify Pond 4 for wastewater treatment and discontinue use of Ponds 1 through 3 and the unlined aeration pond. Modification of Pond 4 will entail dividing it into three basins—two of which will be used as settling basins and one which will be repurposed as an aeration basin. The Discharger anticipates that use of Pond 4, with the high quality clay liner, will be more protective of groundwater than the use of Ponds 1 through 3 and the unlined aeration pond.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

A. Legal Authorities

This Order is issued pursuant to regulations in the Clean Water Act (CWA) and the California Water Code (CWC) as specified in the Finding contained at section II.C of this Order.

B. California Environmental Quality Act (CEQA)

This Order meets the requirements of CEQA as specified in the Finding contained at section II.E of this Order.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** This Order implements the following water quality control plans as specified in the Finding contained at section II.H of this Order.

a. *Water Quality Control Plan, Fourth Edition (Revised September 2009), for the Sacramento and San Joaquin River Basins* (Basin Plan).

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.

3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.

4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.

6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).

7. **Storm Water Requirements**

   A series of drainage ditches surround the plant and convey storm water runoff to Red Bank Creek at two storm water discharge locations, SW-1 and SW-2. Storm water from adjacent industrial properties located to the west of the Facility drains to the Facility property. The Discharger routes storm water run-on via culverts and ditches to Red Bank Creek at storm water discharge location SW-1.

   USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from manufacturing facilities. Manufacturing facilities where materials, equipment, or activities are exposed to storm water are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Facility has submitted a Notice of Intent (NOI) to be covered under the State Water Board's Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, WDRs for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities.

8. **Endangered Species Act.** This Order is consistent with the Endangered Species Act as specified in the Finding contained at section II.P of this Order.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have

2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Regional Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. The Regional Water Board adopted a TMDL for diazinon in the Sacramento and Feather Rivers and amended the Basin Plan to include diazinon waste load allocations and water quality objectives on 16 October 2003, which applies to the Sacramento River from the Shasta Dam to the Colusa Basin Drain and its tributaries. On 3 May 2007, the Regional Water Board adopted Resolution No. R5-2007-0034, revising the water quality objectives and control program for diazinon originally adopted in 2003 and adding water quality objectives and a control program for chlorpyrifos. TMDLs for DDT, dieldrin, mercury, and PCBs in the Sacramento River between Red Bluff and Knights Landing are scheduled for completion in 2021. A TMDL for unknown toxicity is scheduled for completion in 2019.

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

E. Other Plans, Polices and Regulations

1. **Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27).** Discharges of wastewater to land, including but not limited to evaporation ponds or percolation ponds, are exempt from the requirements of Title 27, CCR, based on section 20090 et seq. Title 27 CCR section 20090(b) contains an exemption for discharges of wastewater to land where the discharge is covered by WDRs, the discharge is in compliance with the Basin Plan, and the discharge does not need to be managed as a hazardous waste. This Order serves as WDRs for the discharge and the discharge does not need to be managed as hazardous waste. The Facility contains four clay-lined settling ponds and an aeration pond where a determination has been made by the Regional Water Board whether the facilities meet the exemptions from Title 27.

Order No. R5-2004-0124 required the Discharger to submit a *Process Wastewater Evaluation and Treatment Report* identifying BPTCs to prevent infiltration to groundwater of pollutants that could impact groundwater. The Discharger conducted a pond liner assessment on Ponds 1 through 4 and determined that the ponds were constructed with a clay liner and were capped with gravel, presumably to provide a working surface for heavy equipment during removal of solids. Ponds 1 through 3 have been utilized for several years, and have been emptied many times. Due to the high quality of the liner of Pond 4, the Discharger concluded that BPTC could include providing treatment in Pond 4, modified as discussed in section II.E of this Fact Sheet, and discontinuation of the use of Ponds 1 through 3 and the aeration pond.

In order to qualify for an exemption from Title 27 under section 20090(b), the Discharger must demonstrate compliance with the Basin Plan, which includes meeting BPTC and complying with water quality objectives for groundwater. Groundwater monitoring data has not been obtained to determine whether any attenuation beneath Ponds 1 through 3 or the aeration pond has occurred. The Discharger has conducted groundwater monitoring around Pond 4 since 2007; however, compliance with the Basin Plan for the underlying groundwater cannot be determined since Pond 4 has never been utilized. Until the Discharger provides further information (e.g., groundwater monitoring data) and meets BPTC, the Regional Water Board cannot determine whether the wastewater treated in the Operational Pond, and thus the underlying groundwater, complies with the applicable water quality control plan, as required by the exemption at Title 27 section 20090(b). Therefore, this Order includes a compliance schedule requiring the Discharger to implement BPTC and requires the Discharger to collect groundwater monitoring data to discern whether discharges to the Operational Pond is degrading water quality.

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 CFR 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 CFR 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 CFR 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 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include WQBELs 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 Regional 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 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA'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 Regional Water Board's "*Policy for Application of Water Quality Objectives*")(40 CFR 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 Regional Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: *"Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses*."

A. Discharge Prohibitions

1. This Order prohibits discharge of wastewater at a location or in a manner different from that described in the Findings. This prohibition allows the Discharger to discharge waste only in accordance with WDRs. It is based on CWA sections 301 and 402 and CWC section 13263.

2. 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 CFR 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 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation, provided that the bypass does not cause violation of effluent and/or receiving water limitations.

3. This Order prohibits creation of a nuisance by the discharge and its treatment. This prohibition is based on CWC section 13050.

4. This Order prohibits the Discharger from allowing pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. This prohibition is necessary to ensure that the wastewater provides proper treatment and that dilution is not used to comply with the requirements of this Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR 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 Secondary Fiber Non-Deink Subcategory of the Pulp, Paper, and Paperboard Point Source Category (40 CFR Part 430, Subpart J, for secondary fiber non-deink facilities where molded products from wastepaper are produced without deinking).

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 performance by plants 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 the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

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 USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. CWA section 402(a)(1) and 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR 125.3.

2. Applicable Technology-Based Effluent Limitations

a. BOD_5, TSS, and pH. Effluent limitations guidelines and standards were established at 40 CFR Part 430, Subpart J for the Secondary Fiber Non-Deink Subcategory of the Pulp, Paper, and Paperboard Point Source Category. The Discharger produces molded pulp products primarily from secondary fibers without deinking at the Facility, and thus the requirements of 40 CFR Part 430, Subpart J are applicable to the discharge of process wastewater from the Facility. The discharge from the Facility is continuous, with few exceptions.

40 CFR 430.102(b) requires that existing point sources subject to Subpart J achieve the effluent limitations representing the degree of effluent reduction attainable by the application of BPT for continuous dischargers as described in the table below.

Table F-3. BPT Effluent Limitations for Secondary Fiber Non-Deink Facilities Where Molded Products from Wastepaper are Produced Without Deinking

Parameter	Units	Effluent Limitations	
		Maximum for any 1 day	Average of daily values for 30 consecutive days
Biochemical Oxygen Demand (5-Day @ 20°C)	lbs/1,000 lbs of product	4.4	2.3
Total Suspended Solids	lbs/1,000 lbs of product	10.8	5.8
pH	standard units	[1]	--

[1] Within the range of 5.0 to 9.0 at all times.

The Discharger produces approximately 900 tons (1.8 million pounds) of product per month and operates daily, resulting in an average daily production of 60,000 pounds. Effluent limitations for BOD_5 and TSS were calculated based on the applicable BPT effluent limitations described in Table F-3 above and using an average daily production of 60,000 pounds of product.

The effluent limitation guidelines at 40 CFR Part 430, Subpart J do not require concentration-based effluent limitations for BOD_5 and TSS; however, Order No. R5-2004-0124 established a concentration-based maximum daily effluent limitation (MDEL). Consistent with Order No. R5-2004-0124, this Order includes a concentration-based maximum daily effluent limitation for BOD_5 and TSS based on the maximum capacity of 2.7 MGD.

b. Pentachlorophenol and Trichlorophenol. 40 CFR 430.104 requires that existing point sources subject to Subpart J and where chlorophenolic-containing biocides are used, achieve the effluent limitations representing the degree of effluent reduction attainable by the application of BAT as described in the table below.

Table F-4. BAT Effluent Limitations for Secondary Fiber Non-Deink Facilities Where Molded Products from Wastepaper are Produced Without Deinking

Parameter	Units	Effluent Limitations
		Maximum for any 1 day[1]
Pentachlorophenol	lbs/1,000 lbs of product	0.00087
	mg/L	(0.029)(7.2)/y
Trichlorophenol	lbs/1,000 lbs of product	0.00030
	mg/L	(0.010)(7.2)/y

[1] y = wastewater discharged in kgal per ton of product.

Dischargers not using chlorophenolic-containing biocides are required to certify that they are not using these biocides. The Discharger submitted a letter dated 18 March 2004, and confirmed during a site visit on 25 May 2010, that chlorophenolic-containing biocides are not used at the Facility. Thus, effluent limitations for pentachlorophenol and trichlorophenol based on BAT are not included in this Order.

c. Flow. The design flow rate of the Facility is 2.7 MGD. Order No. R5-2004-0124 included effluent limitations for flow. Consistent with Order No. R5-2004-0124, this Order contains a maximum daily discharge flow effluent limitation of 2.7 MGD.

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

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	2.7	--	--
Conventional Pollutants					
Biochemical Oxygen Demand (5-Day @ 20°C)	mg/L[1]	--	11.4	--	--
	lbs/day	138	264	--	--
Total Suspended Solids	mg/L[1]	--	28.5	--	--
	lbs/day	348	648	--	--
pH	standard units	--	--	5.0	9.0

[1] Concentration-based effluent limitation based on a maximum capacity of 2.7 MGD.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

40 CFR 122.44(d)(1)(i) mandates 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, WQBELs must be established using: (1) USEPA 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 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs 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 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, 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 CFR 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

Table II-1 of the Basin Plan establishes beneficial uses for the Sacramento River between Shasta Dam and the Colusa Basin Drain. Beneficial uses applicable to the Sacramento River are as follows:

Table F-6. Basin Plan Beneficial Uses

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

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 May 2007 through April 2010, which includes effluent and ambient background data submitted in SMRs. The RPA was also based on priority pollutant monitoring data collected on 5 December 2008 and 24 February 2009. The 5 December 2008 priority pollutant monitoring data consisted of samples of the

upstream receiving water and the treated process wastewater collected after the clarifier and prior to commingling with non-contact cooling and sealing water. A subset of the priority pollutants were measured in the non-contact cooling and sealing water on 24 February 2009. For constituents where measurements were taken of both the treated process wastewater and non-contact cooling and sealing water, a flow-weighted average effluent concentration was calculated and used to conduct the RPA. For constituents where only process wastewater data was available, the maximum effluent concentration (MEC) in the combined effluent was assumed to be equal to the concentration in the 5 December 2008 sample of treated process wastewater. Priority pollutants were also measured during a pilot study on 19 December 2008 in which all process wastewater bypassed the settling ponds and aeration pond and was treated in the clarifier. Because this data is not representative of current treatment plant performance, this data was not used for the RPA.

c. Priority Pollutant Metals

i. 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], the CTR[2] and State Water Board Order No. WQO 2008-0008 (City of Davis). 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), Table 4, note 4.) 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. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Regional Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces criteria that

[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. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.

(a) Reasonable Potential Analysis

The SIP in Section 1.3 states, "*The RWQCB shall…determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective*." Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the MEC and maximum receiving water background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(1) For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case downstream hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas in the receiving water affected by the discharge. Therefore, for this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection (b), below.

(2) For comparing the maximum ambient background concentration to the applicable criterion, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case upstream hardness was used to adjust the criterion. In this evaluation the area outside the influence of the discharge is analyzed. For this situation, the discharge does not impact the upstream hardness. Therefore, the effect of the effluent hardness was not included in this evaluation.

(b) Calculation of WQBELs

The remaining discussion in this section relates to the development of WQBELs when it has been determined that the discharge has reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

A 2006 Study[1] developed procedures for calculating the effluent concentration allowance (ECA)[2] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. Simply using the lowest recorded upstream receiving water hardness to calculate the ECA may result in over or under protective WQBELs.

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

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

Where:

H = hardness (as $CaCO_3$)
WER = water-effects 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 equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$\text{ECA} = C \text{ (when } C \leq B)^{3} \text{(Equation 2)}$$

Where:

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1, above)
B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper,

[1] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.
[2] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate WQBELs in accordance with Section 1.4 of the SIP.
[3] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., C ≤ B).

nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as "Concave Up Metals".

ECA for Concave Down Metals – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc), the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria. Therefore, based on any observed ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion) and the minimum effluent hardness, the ECA calculated using Equation 1 with a hardness equivalent to the minimum effluent hardness is protective under all discharge conditions (i.e., high and low dilution conditions and under all mixtures of effluent and receiving water as the effluent mixes with the receiving water). This is applicable whether the effluent hardness is less than or greater than the ambient background receiving water hardness.

The minimum effluent hardness was 69 mg/L (as $CaCO_3$), based on 36 samples from May 2007 to April 2010, while the upstream receiving water hardness varied from 42 mg/L to 67 mg/L, based on 36 samples from May 2007 to April 2010. Using a hardness of 69 mg/L (as $CaCO_3$) to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in the example using copper shown in Table F-7, below. This example assumes the following conservative conditions:

- The upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 42 mg/L as $CaCO_3$)
- The upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity). Based on available data, the receiving water never exceeded the CTR criteria for any metal with hardness-dependent criteria.

Using these reasonable worst-case conditions, the discharge can be mixed with the receiving water and a resulting downstream mixed hardness (or metals concentration) can be calculated for all discharge and mixing conditions (e.g., 0% effluent to 100% effluent) based on a simple mass balance as shown in Equation 3, below. By evaluating all discharge conditions the reasonable worst-case downstream hardness can be determined for adjusting the CTR criteria.

$C_{MIX} = C_{RW} \times (1\text{-}EF) + C_{Eff} \times (EF)$ (Equation 3)

Where:

C_{MIX} = Mixed concentration (e.g., metals or hardness)

C_{RW} = Upstream receiving water concentration

C_{Eff} = Effluent concentration

EF = Effluent fraction

As demonstrated in Table F-7, using a hardness of 69 mg/L (as $CaCO_3$) to calculate the ECA ensures the discharge is protective under all discharge and mixing conditions. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. An ECA based on a lower hardness (e.g., lowest upstream receiving water hardness) would also be protective, but would result in unreasonably stringent effluent limits considering the known conditions. Therefore, in this Order the ECA for all Concave Down Metals has been calculated using Equation 1 with a hardness of 69 mg/L (as $CaCO_3$).

Table F-7. Copper ECA Evaluation

Minimum Observed Effluent Hardness	**69 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**42 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Copper Concentration	**4.4 µg/L[1]**
Copper $ECA_{chronic}$[2]	**6.8 µg/L**

Effluent Fraction	Mixed Downstream Ambient Concentration		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Copper[5] (µg/L)**
1%	42	4.5	4.5
5%	43	4.6	4.6
15%	46	4.8	4.8
25%	49	5.0	5.0
50%	56	5.6	5.6
75%	62	6.2	6.2
100%	69	6.8	6.8

1 Maximum assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 42 mg/L (as $CaCO_3$).
2 ECA calculated using Equation 1 for copper criterion at a hardness of 69 mg/L (as $CaCO_3$).
3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
4 Mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
5 Mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction.

<u>ECA for Concave Up Metals</u> – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the 2006 Study demonstrates that due to a different relationship between hardness and the metals criteria, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may be out of compliance. Therefore, the 2006 Study provides a mathematical approach to calculate the ECA to ensure that any mixture of effluent and receiving water is in compliance with the CTR criteria (see Equation 4, below). The ECA, as calculated using Equation 3, is based on the reasonable worst-case ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion), and the minimum observed effluent hardness. The reasonable worst-case ambient background hardness depends on whether the effluent hardness is greater than or less than the upstream receiving water hardness. There are circumstances where the conservative ambient background hardness assumption is to assume that the upstream receiving water is at the highest observed hardness concentration. The conservative upstream receiving water condition as used in the Equation 3 below is defined by the term H_{rw}.

$$ECA = \left(\frac{m(H_e - H_{rw})\left(e^{m\{\ln(H_{rw})\}+b}\right)}{H_{rw}} \right) + e^{m\{\ln(H_{rw})\}+b} \quad (\textit{Equation } 4)$$

Where:

m, b = criterion specific constants (from CTR)
H_e = minimum observed effluent hardness
H_{rw} = minimum observed upstream receiving water hardness when the minimum effluent hardness is always greater than observed upstream receiving water hardness ($H_{rw} < H_e$)

A similar example as was done for the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-8, below. As previously mentioned, the minimum effluent hardness is 69 mg/L (as $CaCO_3$), while the upstream receiving water hardness ranged from 42 mg/L to 67 mg/L (as $CaCO_3$). In this case, the minimum effluent concentration is greater than the range of observed upstream receiving water hardness concentrations. Thus, the ECA was calculated (Equation 4) based on the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion) and the minimum effluent hardness.

Using Equation 4 to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in Table F-8, for lead. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. Use of a lower ECA (e.g., calculated based solely on the lowest upstream receiving water hardness) is also protective, but would lead to unreasonably stringent effluent limits considering the known conditions. Therefore, Equation 4 has been used to calculate the ECA for all Concave Up Metals in this Order.

Table F-8. Lead ECA Evaluation

Minimum Observed Effluent Hardness			**69 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness			**42 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Lead Concentration			**1.1 µg/L[1]**
Lead $ECA_{chronic}$[2]			**1.9 µg/L**
Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Lead[5] (µg/L)**
1%	42	1.1	1.1
5%	43	1.1	1.1
15%	46	1.2	1.2
25%	49	1.3	1.3
50%	56	1.5	1.5
75%	62	1.7	1.7
100%	69	2.0	1.9

1 Minimum assumed upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 42 mg/L (as $CaCO_3$).
2 ECA calculated using Equation 4 for chronic criteria.
3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
4 Mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
5 Mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.

ii. **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. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

d. **Assimilative Capacity/Mixing Zone.** The Discharger submitted a *Mixing Zone Study for NPDES Permitted Discharges* (URS) in April 2004 requesting mixing zones for zinc and cadmium. Order No. R5-2004-0124 included effluent limitations for zinc which were calculated using a dilution credit of 8, and did not include effluent limitations for cadmium. The Discharger submitted an *Update of Mixing Zone Modeling Evaluation of Pactiv Corporation Red Bluff, CA Facility Discharge to the Sacramento River* (LimnoTech) dated 5 March 2009 to verify that the mixing zones and dilution credits proposed in the 2004 study are still valid.

Based on monitoring data collected during the term of Order No. R5-2004-0124, cadmium does not indicate reasonable potential to cause or contribute to an

exceedance of applicable water quality objectives and effluent limitations are not included in this Order.

Order No R5-2004-0124 allowed Pactiv a mixing zone for zinc corresponding to a dilution credit of 8:1. The Basin Plan water quality objective for zinc in the Sacramento River above Hamilton City is 17 µg/L. Based on monthly receiving water monitoring between May 2007 and April 2010, the receiving water exceeded the Basin Plan objective for zinc twice out of 37 samples at concentrations of 31.8 µg/L on 13 January 2010 and 136 µg/L on 4 January 2008. The SIP requires the maximum background concentration, based on representative samples also unaffected by significant storm events, be used when calculating the ECA. Because the background exceeds the criteria, there is no assimilative capacity for zinc and effluent limitations cannot be calculated with dilution credits. Therefore effluent limitations for zinc were calculated without credit for dilution pending review of information to determine if these samples were representative.

The 2004 study and 2009 update do not address constituents other than zinc or cadmium, such as copper added for the first time in this Order. The Discharger has requested dilution credits for zinc and copper. Effluent limitations for all constituents will be calculated without credit for dilution pending review of Dischargers Dilution Study.

Order No. R4-2004-0124 allowed a mixing zone for chronic toxicity corresponding to a dilution ratio of 8:1. However, the 2004 study and the 2009 update did not address mixing zones for chronic whole effluent toxicity, but specifically addressed mixing zones for individual pollutants (i.e., cadmium and zinc). The consideration of whether or not to grant a mixing zone for chronic whole effluent toxicity can be highly site- and discharge-specific, but in general, the minimum information necessary to make such a determination is:

i. The amount of dilution needed to pass the chronic whole effluent toxicity test (this can come from dilution series testing);

ii. The cause(s) of the toxicity (this can come from a toxicity reduction evaluation (TRE), but a full TRE will not be required in all cases);

iii. Evidence that the Discharger is providing treatment and control for each pollutant/condition causing the toxicity to result in a mixing zone that is "as small as practicable."

iv. The size of the mixing zone that is required to dilute the effluent to a non-toxic condition (this relates to the physical mixing that occurs between the effluent and the receiving water and could come from a mixing zone and dilution study);

v. The physical and biological impacts of allowing a mixing zone for whole effluent chronic toxicity (this can come from a biological evaluation, and could include bioassessment protocols); and

vi. Evidence that all remaining SIP conditions are met.

If this information supports granting a mixing zone for chronic whole effluent toxicity, then a mixing zone no larger than needed by the Discharger and no larger than allowed by the SIP can be considered. This information is not included in the 2004 study or 2009 update. Therefore, this Order does not allow a mixing zone for chronic toxicity and includes a numeric monitoring trigger of 1 chronic toxicity units (TUc).

This Order includes a reopener provision to reopen the permit to allow an appropriate mixing zone for chronic whole effluent toxicity, zinc and copper and revise the numeric monitoring trigger if the necessary information is provided.

3. Determining the Need for WQBELs

a. The Regional Water Board conducted the RPA in accordance with section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency*." Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.

b. Constituents with Limited 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. Pentachlorophenol. The CTR criterion for protection of human health for pentachlorophenol is 0.28 µg/L. Pentachlorophenol was detected, but not quantified, in the effluent from the clarifier prior to commingling with non-contact cooling and sealing water at an estimated concentration of 0.3 µg/L based on the results from one sample. Monitoring data for pentachlorophenol in the non-contact cooling and sealing water is not available. The Discharger submitted a certification on 18 March 2004, and verified during a 25 May 2010 site visit and a discussion on 9 September 2010, that chlorophenolic-

[1] See Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).

containing biocides, which include pentachlorophenol, are not used at the Facility. Because monitoring data for pentachlorophenol is limited to one estimated value at an internal monitoring point, and pentachlorophenol has not been detected in the effluent, the Regional Water Board is unable to determine if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for protection of human health for pentachlorophenol. Therefore, effluent limitations for pentachlorophenol are not included in this Order. This Order requires the Discharger to conduct quarterly monitoring for pentachlorophenol for 2 years following the adoption date of this Order. If monitoring data indicates reasonable potential to exceed the applicable criteria, then the Regional Water Board will reopen this Order and establish applicable WQBELs for pentachlorophenol.

ii. **2,3,7,8-TCDD and TCDD-Equivalents.** 2,3,7,8-TCDD was not detected in any of the samples collected in the Facility effluent or in the downstream receiving water. TCDD-equivalents was detected in the effluent from the clarifier prior to commingling with non-contact cooling and sealing water at 4.2 x 10^{-8} µg/L based on one sampling event on 5 December 2008. Monitoring data for TCDD-equivalents in the non-contact cooling and sealing water is not available. The maximum observed upstream receiving water TCDD-equivalents concentration was 3.8 x 10^{-8} µg/L based on one sampling event on 5 December 2008. In the internal clarifier and receiving water, two of the congeners (1,2,3,4,6,7,8-HpCDD and OCDD) were reported as detected, however, each of the detected values were estimated values (i.e., j-flagged).

Dioxins have historically been associated with the pulp and paper industry due to the use of pulp bleaching. However, this process has, for the most part, been eliminated in the industry. There are two subcategories of the ELGs for the Pulp, Paper, and Paperboard Point Source Category in 40 CFR Part 430 for which standards for dioxins have been established; however, these subcategories are not applicable to the Facility.

The Discharger purchases recycled and virgin pulp that has been prepared by other facilities. The recycled and virgin pulps are prepared by separate processes. The recycled feedstock (e.g., newsprint) is mixed with water and agitated to obtain pulp fiber, but requires heating to 115°-125°F. No chemicals are added for the preparation of the recycled feedstock. The market dry virgin pulp is mixed with cold water and approximately half a gallon of a microorganism control chemical containing 12.5% sodium hypochlorite is added. The source of dioxins in the discharge is uncertain. If dioxins are present, potential sources may be the recycled feedstocks, the source water, or the processes at the Facility.

Based on the limited data provided, the Regional Water Board is unable to determine if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective, interpreted using the CTR criterion for 2,3,7,8-TCDD, for TCDD-equivalents.

WQBELs for TCDD-equivalents are not included in this Order due to the fact that 1) there is limited data and available data are estimated values, 2) the Sacramento River is not listed as impaired for dioxins and furans, and 3) the uncertainty of the source of dioxins.

Due to the concerns of the potential impacts of dioxins and furans on the receiving water, this Order will require monitoring of all 2,3,7,8-TCDD congeners twice during the third year following the effective date of this Order, once during dry weather and once during wet weather. If monitoring data indicates the potential for exceedance of applicable criteria, then the Regional Water Board will reopen the Order and establish applicable WQBELs for TCDD-equivalents.

This Order also requires the Discharger to implement measures to evaluate and reduce detected dioxins (1,2,3,4,6,7,8-HpCDD and OCDD) in its discharge to the receiving water. The Special Provision in section VI.C.3.b of this Order requires the Discharger to prepare a 2,3,7,8-TCCD congeners source evaluation and minimization plan. Implementation measures to reduce detectable amounts of congeners may include source control and other effective means. Compliance with these requirements should result in the reduction of detectable amounts of TCDD-equivalents in the effluent discharged to the receiving water.

c. **Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; 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.

i. **Salinity.** There are no USEPA water quality criteria for the protection of aquatic organisms for electrical conductivity, total dissolved solids, sulfate, and chloride. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for electrical conductivity, total dissolved solids, sulfate, and chloride. The Basin Plan also contains a numeric water quality objective for electrical conductivity for the Sacramento River at Knights Landing above the Colusa Basin Drain.

Table F-9. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[2]	Basin Plan Objective	Effluent	
				Average[3]	Maximum
Electrical Conductivity (µmhos/cm)	Varies[4]	900, 1600, 2200	230[5]	367	539
Total Dissolved Solids (mg/L)	Varies	500, 1000, 1500	--	NA	NA
Sulfate (mg/L)	Varies	250, 500, 600	--	NA	NA
Chloride (mg/L)	Varies	250, 500, 600	--	NA	NA

Parameter	Agricultural WQ Goal[1]	Secondary MCL[2]	Basin Plan Objective	Effluent	
				Average[3]	Maximum

NA – Not available

1 Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)

2 The Secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

3 Maximum observed annual average concentration.

4 The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 umhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

5 The electrical conductivity in the Sacramento River at Knights Landing above the Colusa Basin Drain shall not exceed 230 µmhos/cm (50th percentile) or 235 µmhos/cm (90th percentile) based upon the previous 10 years of record.

The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts. The Basin Plan requires that electrical conductivity in the Sacramento River at Knights Landing above the Colusa Basin Drain shall not exceed 230 µmhos/cm (50th percentile) or 235 µmhos/cm (90th percentile) based upon the previous 10 years of record.

A review of the Discharger's monitoring reports shows a maximum annual average effluent EC of 367 µmhos/cm, with a range from 227 µmhos/cm to 539 µmhos/cm. Downstream receiving water monitoring data shows a range of 94 µmhos/cm to 188 µmhos/cm. Given the distance between the Facility and the compliance point at Knights Landing above the Colusa Basin Drain, the significant amount of assimilative capacity available, and the amount of dilution provided, the discharge does not have reasonable potential to cause or contribute to an exceedance of the Basin Plan objective. Thus, effluent limitations for electrical conductivity are not included in this Order. 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. 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.

d. Constituents with Reasonable Potential. The Regional 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 copper, mercury, pH, settleable solids, and zinc. WQBELs 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.

ii. Copper

(a) WQO. Table III-1 of the Basin Plan contains a hardness-based water quality objective, expressed as a maximum concentration, for dissolved copper applicable to the Sacramento River and its tributaries above the State Highway 32 Bridge at Hamilton City. Using the minimum upstream receiving water hardness of 42 mg/L to determine the Basin Plan water quality objective, the applicable water quality objective for copper is 5.9 µg/L, as dissolved. Applying the acute conversion factor for copper of 0.96, the applicable water quality objective for copper is 6.1 µg/L, as total recoverable. Based on the CTR criteria, the water quality objective for copper is 6.8 µg/L, therefore the lowest criteria of the Basin Plan and the CTR is 6.1 µg/L, which is used for determining reasonable potential.

The CTR includes hardness-dependent acute and chronic criteria for the protection of freshwater aquatic life for copper. Footnote x for the acute criterion for copper in the CTR at 40 CFR 131.38(b)(1) states, "*The State of California has adopted and EPA has approved site specific criteria for the Sacramento River (and tributaries) above Hamilton City; therefore, these criteria do not apply to these waters*." Thus, the acute CTR criterion for copper is not applicable. As described further in section IV.C.2.c.i of this Fact Sheet, the minimum observed effluent hardness was used to adjust the CTR criterion when comparing the MEC to the CTR chronic criterion and the minimum observed receiving water hardness was used when comparing the maximum background receiving water concentrations to the CTR chronic criterion. Using the default conversion factors and the minimum observed effluent hardness, the applicable chronic (4-day average) criterion for the effluent is 6.8 µg/L, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable chronic (4-day average) criterion for the receiving water is 4.4 µg/L, as total recoverable.

(b) RPA Results. The MEC for copper was 6.91 µg/L (as total recoverable), which represents the flow-weighted average of the effluent from the clarifier and non-contact cooling and sealing water, as described in section IV.C.2.b of this Fact Sheet. The maximum observed upstream receiving water concentration was 1.8 µg/L (as total recoverable). Therefore, copper in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life and the applicable Basin Plan water quality objective.

(c) WQBELs. This Order contains a final AMEL and MDEL for copper as shown in Table F-10 of this Fact Sheet, based on the applicable Basin Plan water quality objective.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 6.91 µg/L is greater than the applicable WQBELs.

iii. Mercury

(a) WQO. The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) RPA Results. The MEC for mercury was 0.00079 µg/L, which represents the flow-weighted average of the effluent from the clarifier and non-contact cooling and sealing water, as described in section IV.C.2.b of this Fact Sheet. Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The Sacramento River from Red Bluff to Knights Landing has been listed as an impaired water body pursuant to CWA section 303(d) because of mercury and the discharge must not cause or contribute to increased mercury levels. Additionally, the discharge of mercury to surface waters in the Central Valley draining to the Sacramento-San Joaquin Delta are being limited in order to protect the beneficial uses of the Delta.

(c) WQBELs. This Order contains a performance-based mass effluent limitation of 0.0065 lbs/year for mercury for the effluent discharged to the receiving water. This limitation is based on maintaining the mercury loading at the current level to protect the beneficial uses of the Delta. The mass limitation was derived using the maximum observed effluent mercury concentration and the design average daily flow rate of the current treatment plant (2.7 MGD):

Effluent concentration (mg/L) * Design average daily flow rate * 8.34 (conversion factor) * [365 days / 1 year] = lbs/year

If USEPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(d) Plant Performance and Attainability. The effluent limitations for mercury are based on treatment plant performance. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. pH

(a) WQO. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*"

(b) RPA Results. The discharge of process wastewater and non-contact cooling and sealing water has a reasonable potential to cause or contribute to an excursion above the Basin Plan's numeric objectives for pH.

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

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the pH of the effluent is consistently between 6.5 and 8.5. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. 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 previous permit and many historic permits used 0.1 mL/L as a monthly average effluent limit, and 0.2 mL/L as a daily maximum limit, based on Best Professional Judgment. These concentrations have proven to be effective in preventing exceedances of the Basin Plan's narrative objective for settleable substances. Therefore, this permit also uses these concentrations for RPA and effluent limits.

(b) RPA Results. The discharge of process wastewater and non-contact cooling and sealing water has a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids.

(c) WQBELs. This Order retains effluent limitations for settleable solids from Order No. R5-2004-0124 to ensure that the treatment works operate in accordance with design capabilities and to protect beneficial uses. 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. Settleable solids were detected only once out of 157 samples. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vi. Zinc

(a) WQO. Table III-1 of the Basin Plan contains a hardness-based water quality objective, expressed as a maximum concentration, for dissolved zinc applicable to the Sacramento River and its tributaries above the State Highway 32 Bridge at Hamilton City. Using the minimum upstream receiving water hardness of 42 mg/L to determine the Basin Plan water quality objective, the applicable water quality objective for zinc is 17 µg/L, as dissolved. Applying the acute conversion factor for zinc of 0.978, the applicable water quality objective for zinc is 17 µg/L, as total recoverable.

The CTR includes hardness-dependent acute and chronic criteria for the protection of freshwater aquatic life for zinc. Footnote x for the acute criterion for zinc in the CTR at 40 CFR 131.38(b)(1) states, "*The State of California has adopted and EPA has approved site specific criteria for the Sacramento River (and tributaries) above Hamilton City; therefore, these criteria do not apply to these waters.*" Thus, the acute CTR criterion for zinc is not applicable. As described further in section IV.C.2.c.i of this Fact Sheet, the minimum observed effluent hardness was used to adjust the chronic CTR criterion when comparing the MEC to the chronic CTR criterion and the minimum observed receiving water hardness was used when comparing the maximum background receiving water concentrations to the chronic CTR criterion. Using the default conversion factors and the minimum observed effluent hardness, the applicable chronic (4-day average) criterion for the effluent is 87 µg/L, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable chronic (4-day average) criterion for the receiving water is 57 µg/L, as total recoverable.

(b) RPA Results. The MEC for zinc was 14 µg/L (as total recoverable), based on 37 samples collected between May 2007 and April 2010. The maximum observed upstream receiving water concentration was 136 µg/L (as total recoverable), based on 37 samples collected between May 2007 and April 2010. Therefore, zinc in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the applicable Basin Plan water quality objective.

(c) WQBELs. As described in section IV.C.2.d of this Fact Sheet, WQBELs for zinc have been calculated with no credit for dilution because the Sacramento River does not have assimilative capacity. This Order contains

a final AMEL and MDEL for zinc as shown in Table F-10 of this Fact Sheet, based on the applicable Basin Plan water quality objective.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 14 µg/L is greater than the applicable AMEL.

4. WQBEL Calculations

a. This Order includes WQBELs for copper, mercury, pH, settleable solids, and zinc. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below.

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

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

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

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, 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 MCLs. For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, 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. WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. Human Health Criteria. WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs 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:
multAMEL = statistical multiplier converting minimum LTA to AMEL
multMDEL = statistical multiplier converting minimum LTA to MDEL
MA = statistical multiplier converting acute ECA to LTA_{acute}
MC = statistical multiplier converting chronic ECA to $LTA_{chronic}$

See Attachment H for the WQBEL calculations for parameters with aquatic toxicity and human health criteria. See Section IV.D of this Fact Sheet for a summary of WQBELs contained in this Order.

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 chronic toxicity. The Order also 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…*". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*"

Consistent with Order No. R5-2004-0124, 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 or more 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.)

The Discharger conducted annual three species chronic WET tests with five endpoints between 2007 and 2009 using a dilution series with a maximum effluent fraction of 50%. Using this dilution series, the maximum possible no observable effects concentration (NOEC) is 50% and the minimum possible TUc (100/NOEC) is 2 TUc. All chronic WET testing data conducted between 2007 and 2009 resulted in <2 TUc. As described in section IV.C.2.d of this Fact Sheet, this Order does not allow for a mixing zone for chronic toxicity. Thus, chronic toxicity testing results exceeding 1 TUc demonstrate that the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. However, because the minimum possible TUc using the dilution series required by Order No. R5-2004-0124 is 2 TUc, it is uncertain whether the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order requires the Discharger to submit to the Regional Water Board an Initial Investigative Toxicity Reduction Evaluation (TRE) Workplan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also 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

[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)

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 CFR 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 Limitations

Table F-10. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				Basis[1]
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	--	2.7	--	--	DC
Conventional Pollutants						
Biochemical Oxygen Demand (5-Day @ 20°C)	mg/L	--	11.4[2]	--	--	CFR
	lbs/day	138	264	--	--	
pH	standard units	--	--	6.5	8.5	BP
Total Suspended Solids	mg/L	--	28.5[2]	--	--	CFR
	lbs/day	348	648	--	--	
Priority Pollutants						
Copper, Total Recoverable	µg/L	3.1	6.1	--	--	BP
Mercury, Total Recoverable	lbs/year	0.0065[3]	--	--	--	PB
Zinc, Total Recoverable	µg/L	10	17	--	--	BP
Non-Conventional Pollutants						
Settleable Solids	mL/L	0.1	0.2	--	--	PO

1 DC – Based on the design capacity of the Facility.
CFR – Based on effluent limitations guidelines and standards established at 40 CFR Part 430, Subpart J for the Secondary Fiber Non-Deink Subcategory of the Pulp, Paper, and Paperboard Point Source Category.
BP – Based on water quality objectives contained in the Basin Plan.
PB – Based on treatment plant performance.
PO – Based on effluent limitation contained in Order No. R5-2004-0124.

2 Concentration-based effluent limitation based on a maximum capacity of 2.7 MGD.

3 The total annual mass discharge of mercury from the Facility shall not exceed 0.0065 lbs.

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 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 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations for BOD_5 and TSS were calculated by multiplying the applicable effluent limitation guidelines from 40 CFR Part 430, Subpart J, which are expressed in terms of pounds per 1,000 pounds of product, by the Facility's level of production of 60,000 pounds per day.

Mass-based effluent limitations have been established for mercury because it is a bioaccumulative pollutant and the Sacramento – San Joaquin Delta is listed as impaired due to mercury. Mass-based effluent limitations were calculated based upon the permitted maximum daily effluent flow allowed in Section IV.A.1.c of the Limitations and Discharge Requirements.

2. Averaging Periods for Effluent Limitations

40 CFR 122.45 (d) requires maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works unless impracticable. The rationale for using alternative averaging periods for pH and mercury is discussed in section IV.C.3 of this Fact Sheet.

3. Satisfaction of Anti-Backsliding Requirements

All effluent limitations in this Order are at least as stringent as the effluent limitations in previous Order No. R5-2004-0124.

4. Satisfaction of Antidegradation Policy

a. Surface Water. 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 WQBELs 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 CFR 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.

b. Groundwater. The Discharger has four settling ponds and an aeration pond. Process wastewater from the molded pulp process contains constituents such as total dissolved solids (TDS), electrical conductivity, general minerals, and oxygen demanding substances such as BOD and chemical oxygen demand (COD). Percolation from the settling ponds and aeration pond may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to accommodate important economic or social development in the area and must be consistent with maximum benefit to the people of the State of California.

Order No. R5-2004-0124 included groundwater limitations, and required the Discharger to submit a *Process Wastewater Evaluation and Treatment Report* identifying BPTCs to prevent infiltration to groundwater from the treatment pond. The Discharger submitted a *Process Wastewater Evaluation and Treatment Report for Pactiv Corporation's Molded Fiber Plant, Red Bluff, California*

(Pactiv Corporation) in September 2006 that outlined several projects to provide BPTC, including the Duplex Clean Water Sump project and the Groundwood Cleaners project. The Duplex Clean Water Sump project decreased the volume of water treated by the wastewater treatment system by approximately 65 percent. The Groundwood Cleaners project was put in place to reuse fiber that was previously directed to the wastewater treatment system and reduced the average solids loading to the wastewater treatment system from 2,600 lbs/day to less than 500 lbs/day.

The Discharger also evaluated alternatives to discontinue use of Ponds 1 through 3. In December 2008, the Discharger conducted a pilot study to test the feasibility of using a clarifier-only treatment process on an ongoing basis at the Facility. However, after reviewing the study results, the Discharger decided that this alternative was not feasible, and instead plans to modify the wastewater treatment system as described in section II.E of this Fact Sheet.

Groundwater monitoring has not been conducted to evaluate the impacts to groundwater from the use of Ponds 1 through 3 and the aeration pond. Groundwater monitoring has been conducted in the vicinity of Pond 4. Although use of Pond 4 for wastewater treatment is expected to provide BPTC, the pond has never been utilized and thus it is uncertain if its clay liner will be more protective of groundwater. This Order requires the Discharger to monitor groundwater quality in the vicinity of the Operational Pond and conduct quarterly groundwater monitoring to determine if the use of the pond has degraded the underlying groundwater. This Order also contains a compliance schedule requiring compliance with groundwater limitations within 2 years following Order adoption. Prior measures to reduce flow and solids loading to the treatment system in conjunction with the planned modification of the treatment system, as described in section II.E of this Fact Sheet, is expected to provide BPTC.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD_5, flow, pH, and TSS. The WQBELs consist of restrictions on copper, mercury, pH, settleable solids, and zinc. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically 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 WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water

quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR 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.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

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

    a. **Dissolved Oxygen.** Table III-2 of the Basin Plan includes specific dissolved oxygen water quality objectives for the Sacramento River from Keswick Dam to Hamilton City which are applicable to the discharge and requires that dissolved

oxygen concentrations not be reduced below 9 mg/L between 1 June and 31 August. When natural conditions lower dissolved oxygen below this level, concentrations shall be maintained at or above 95 percent of saturation. This Order requires receiving water limitations based on the water quality objectives in Table III-2 of the Basin Plan which are applicable from 1 June to 31 August. This Order also includes water quality objectives applicable to surface waters outside the legal boundaries of the Delta applicable from 1 September to 31 May.

b. pH. Order No. R5-2004-0124 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 Regional Water Board adopted Resolution No. 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 USEPA. 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 No. R5-2007-0136 the Regional 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 CFR 131.12).

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 Regional Water Board finds that the relaxation of the pH receiving water limitation 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 CFR 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 USEPA 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 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.

c. **Temperature.** The Basin Plan requires that the temperature of COLD or WARM intrastate waters shall not be increased more than 5°F above natural receiving water temperature. Table III-4 of the Basin Plan includes specific temperature water quality objectives for the Sacramento River from Keswick Dam to Hamilton City which are applicable to the discharge and requires that the temperature not be elevated above 56°F during periods when temperature increases will be detrimental to the fishery. The Basin Plan specifies that the more stringent objective shall apply to the extent of any conflict with these objectives. Consistent with the Basin Plan and Order No. R5-2004-0124, this Order requires that the discharge shall not cause the normal ambient temperature to be increased more than 5°F, or higher than 56°F when such an increase will be detrimental to the fishery, whichever is more restrictive.

d. **Turbidity.** Order No. R5-2004-0124 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 Regional Water Board adopted Resolution No. 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 USEPA. 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 No. R5-2007-0136 the Regional 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 CFR 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 Regional Water Board finds that the relaxation of the turbidity receiving water limitation 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 CFR 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

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

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

3. Groundwater limitations for total coliform organisms, pH, and nuisance conditions are retained from Order No. R5-2004-0124 and are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) of this Order, establishes monitoring and reporting

requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for the Facility.

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. Effluent monitoring frequencies and sample types for BOD_5 (weekly), flow (continuous), pH (weekly), TSS (weekly), temperature (continuous), settleable solids (weekly), electrical conductivity (weekly), hardness (monthly), and zinc (monthly) have been retained from Order No. R5-2004-0124 to characterize the effluent and determine compliance with applicable effluent limitations.

3. Monitoring data collected over the term of Order No. R5-2004-0124 for cadmium did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for cadmium have not been retained from Order No. R5-2004-0124.

4. Monitoring data collected over the term of Order No. R5-2004-0124 for copper and mercury indicates reasonable potential to exceed water quality criteria and effluent limitations have been established in this Order. Therefore, monthly effluent monitoring for copper and mercury has been established in this Order to determine compliance with effluent limitations.

5. As discussed in Section IV.C.3.b.i of this Fact Sheet, because monitoring data for pentachlorophenol is limited to one estimated value, and the source of pentachlorophenol in the effluent is unknown, the Regional Water Board is unable to determine if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for protection of human health for pentachlorophenol. Therefore, no WQBELs are established in this Order. To collect the data necessary to determine the prevalence of pentachlorophenol in the effluent, quarterly monitoring of pentachlorophenol will be required in this Order for 2 years.

6. As discussed in Section IV.C.3.b.ii of this Fact Sheet, two dioxin congeners (i.e., 1,2,3,4,6,7,8-HpCDD and OCDD) were detected, but not quantified, at an internal sampling point on 5 December 2008, but never in the final effluent. Based on the limited data provided, the Regional Water Board is unable to determine if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above applicable water quality objectives. Therefore, no WQBELs are established in this Order. To collect the data necessary to determine the prevalence of 2,3,7,8-TCDD congeners in the effluent, monitoring of the 2,3,7,8-TCDD

congeners will be required in this Order twice during the third year following the effective date of this Order, once during dry weather and once during wet weather. See Attachment J for more detailed requirements related to performing monitoring for the 2,3,7,8-TCDD congeners.

7. This Order establishes monthly monitoring requirements for total dissolved solids to evaluate loadings to the Sacramento River.

8. Priority pollutant data for the effluent has been provided by the Discharger over the term of Order No. R5-2004-0124, and was used to conduct a meaningful RPA. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires semi-annual monitoring during the third year of the permit term in order to collect data to conduct an RPA for the next permit renewal. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order No. R5-2004-0124, 96-hour bioassay testing is required twice per month to demonstrate compliance with the effluent limitation for acute toxicity. Consistent with Order No. R5-2004-0124, this Order requires acute toxicity testing with rainbow trout (*Oncorhynchus mykiss*).

2. **Chronic Toxicity.** Consistent with Order No. R5-2004-0124, 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. Receiving water monitoring frequencies and sample types at Monitoring Location RSW-001 for pH (weekly), turbidity (weekly), temperature (weekly), electrical conductivity (weekly), zinc (monthly), and hardness (monthly) have been retained from Order No. R5-2004-0124.

c. Receiving water monitoring frequencies and sample types at Monitoring Location RSW-002 for pH (weekly), turbidity (weekly), temperature (weekly), and electrical conductivity (weekly) have been retained from Order No. R5-2004-0124.

d. Monitoring data collected over the term of Order No. R5-2004-0124 for cadmium did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for cadmium at

Monitoring Location RSW-001 have not been retained from Order No. R5-2004-0124.

e. Monitoring data collected over the term of Order No. R5-2004-0124 demonstrated that the receiving water does not have assimilative capacity for zinc and effluent limitations have been established without consideration of dilution credits. Therefore, receiving water monitoring requirements for zinc have not been retained from Order No. R5-2004-0124.

f. Consistent with the effluent monitoring requirements, semi-annual monitoring during the third year of the permit term for priority pollutants upstream of Discharge Point No. 001 at Monitoring Location RSW-001 is required to collect the necessary data to determine reasonable potential as required in section 1.2 of the SIP. The hardness (as $CaCO_3$) of the upstream receiving water shall also be monitored concurrently with the priority pollutants as well as pH to ensure the water quality criteria/objectives are correctly adjusted for the receiving water when determining reasonable potential as specified in section 1.3 of the SIP. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater

a. CWC section 13267 states, in part, "*(a) A Regional Water Board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region*" and "*(b) (1) In conducting an investigation…, the Regional Water Board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.*" The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program is issued pursuant to CWC section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide BPTC

to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining BPTC. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution No. 68-16 and the Basin Plan.

c. This Order requires the Discharger to conduct groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. Although Ponds 1 through 3 contain clay liners, these liners have been diminished during excavations over the years. Groundwater monitoring has been conducted in the vicinity of Pond 4; however the pond has never been utilized and it is unknown if its clay liner is protective of groundwater. Thus, the groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Water Board plans and policies, including Resolution No. 68-16.

E. Other Monitoring Requirements – Not Applicable

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

40 CFR 122.41(a)(1) and (b) through (n) 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. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** This provision allows the Regional 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 Regional 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 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 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 CTR criteria for applicable priority pollutant 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. **Dilution/Mixing Zone Study.** Order No. R4-2004-0124 allowed a mixing zone for chronic toxicity and zinc corresponding to a dilution ratio of 8:1. However, as described further in section IV.C.2.d of this Fact Sheet, the Discharger's 2004 mixing zone study and the 2009 update did not address mixing zones for chronic whole effluent toxicity, but specifically addressed mixing zones for individual pollutants (i.e., cadmium and zinc). Sufficient information demonstrating a mixing zone for chronic whole effluent toxicity, copper and zinc has not been provided yet; therefore, this Order does not allow a mixing zone for chronic whole effluent toxicity, copper and zinc. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, the Regional Water Board may reopen this Order to include effluent limitations based on an appropriate dilution factor. The Discharger shall submit a workplan for Regional Water Board approval prior to conducting the study which may include, but is not limited to, receiving water flow monitoring and methods for conducting the 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 described in section IV.C.5.b of this Fact Sheet, it is uncertain whether the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, this provision requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if a pattern of toxicity is demonstrated.

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

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

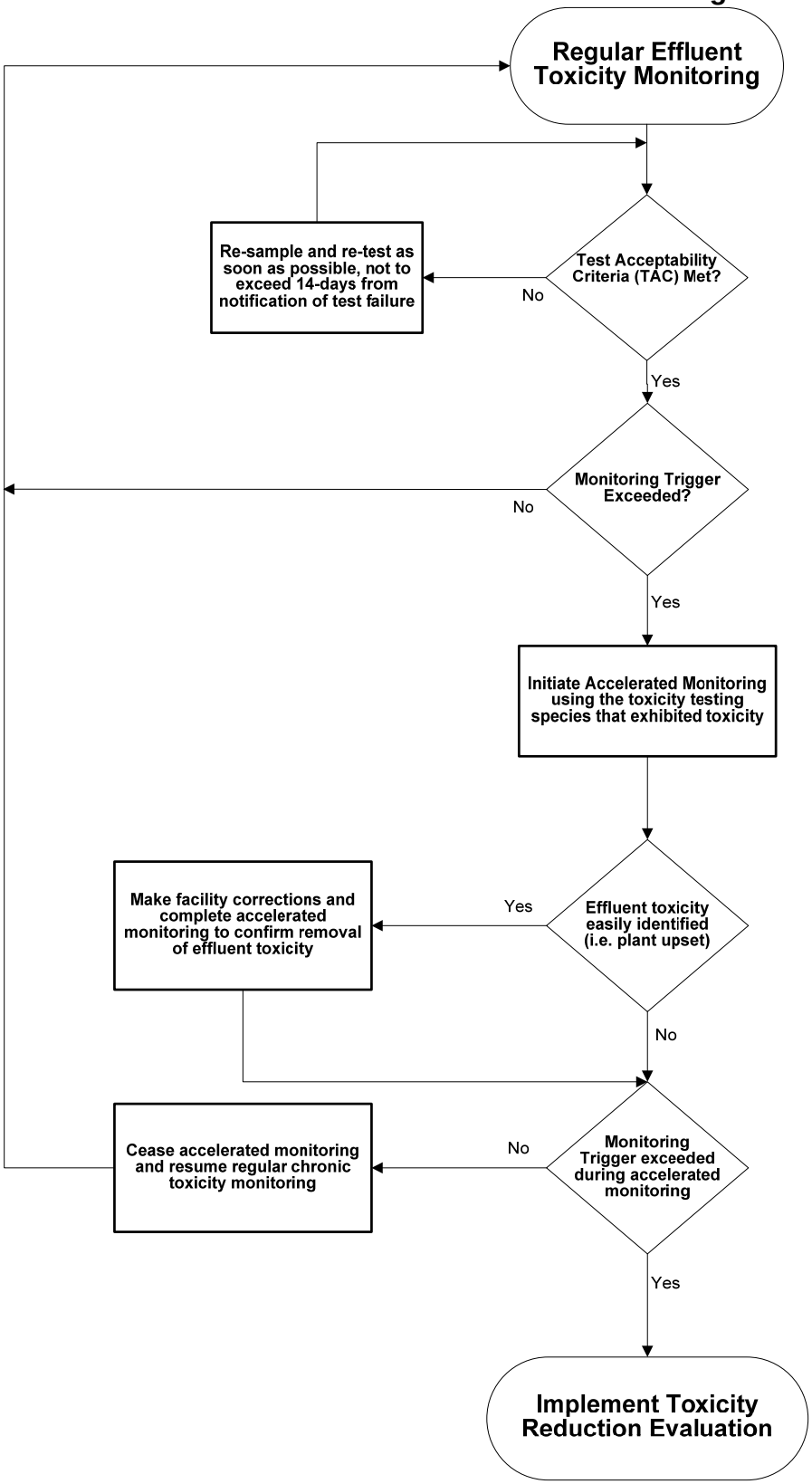
The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water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

- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.
- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- 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.
- 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.
- 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.
- 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.
- 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. **Groundwater Monitoring.** To determine compliance with the groundwater limitations contained in section V.B. of this Order, and to determine if the Discharger meets the pre-conditions for an exemption under Title 27 section 20090(b), the Discharger is required to evaluate the adequacy of its groundwater monitoring network. This provision requires the Discharger to evaluate its groundwater monitoring network to ensure there are one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. Currently, there are no groundwater monitoring wells downgradient of Ponds 1 through 3 and the aeration pond.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program (PMP).** This Order requires the Discharger to develop and conduct a PMP, consistent with section 2.4.5 of the SIP when there is evidence that a toxic pollutant is present in the effluent at a concentration greater than an applicable effluent limitation.

b. **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.

c. **2,3,7,8-TCDD and Other Dioxin and Furan Congeners Source Evaluation and Minimization Plan.** The Discharger is required to prepare a 2,3,7,8-TCDD and other dioxin and furan congeners evaluation and minimization plan to address sources of detectable dioxins (1,2,3,4,6,7,8-HpCDD and OCDD) from the Facility. The plan is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of dioxin and furan congeners to the receiving water.

4. Construction, Operation, and Maintenance Specifications

a. **Treatment Pond Operating Requirements**. The operation and maintenance specifications for Ponds 1 through 4 and aeration pond are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order are retained from Order No. R5-2004-0124. In addition, reporting requirements related to use of the settling ponds and aeration pond are required to monitor their use and the potential impact on groundwater.

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. As discussed in section III.E of this Fact Sheet, the Regional Water Board cannot determine whether the wastewater treated in the Operational Pond, and thus the

underlying groundwater, complies with the applicable water quality control plan, as required by the exemption at Title 27 section 20090(b). Therefore, this Order includes a compliance schedule requiring the Discharger to provide BPTC and to demonstrate achievement of the pre-conditions for an exemption at Title 27 section 20090(b) within 2 years following permit effective date.

b. **Compliance Schedule for Assessment of Previous Pond Discharges**. The Discharger shall submit a Workplan/Schedule for assessing the previous pond discharges to determine if they have impacted groundwater. This Workplan/Schedule should describe the investigative methods that will used to determine if groundwater has been impacted from past discharges, and a final report with recommendations within 3 years following permit effective date. Any remedial actions required to address any impacts must be completed in accordance with a subsequent work plan and time schedule approved by the Central Valley Water Board Executive Officer.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following physical posting (posting at city offices, county courthouse or city hall and internet posting.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on 05 May 2011.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **10 June 2013**
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is www.waterboards.ca.gov/centralvalley where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

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

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information 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 Regional Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional 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 Ron Falkowski at (530) 224-3227.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Antimony, Total Recoverable	µg/L	0.071	0.3	6	--	--	14	4,300	--	6	No
Arsenic, Total Recoverable	µg/L	0.45	0.3	10	340	150	--	--	10	10	No
Butylbenzyl Phthalate	µg/L	0.1	0.1	3,000	--	--	3,000	5,200	--	--	No
Cadmium, Total Recoverable	µg/L	0.13	0.1	0.23	[1]	1.8[2]/1.2[3]	--	--	0.23	5.0	No
Chloroform	µg/L	4.8	<0.1	80	--	--	--	--	--	80	No
Chromium, Total Recoverable	µg/L	1.4	<2.5	50	--	--	--	--	--	50	No
Copper, Total Recoverable	µg/L	6.9	1.8	6.1	[1]	6.8[2]/4.4[3]	1,300	--	6.1	1,000	Yes
2,4-Dichlorophenol	µg/L	0.2	<0.2	93	--	--	93	790	--	--	No
Di-n-Butyl Phthalate	µg/L	0.2	0.2	2,700	--	--	2,700	12,000	--	--	No
Electrical Conductivity @ 25ºC	µmhos/cm	539	158	230	--	--	--	--	230	900	No[4]
Lead, Total Recoverable	µg/L	0.11	0.1	1.9[2]/1.1[3]	49[2]/27[3]	1.9[2]/1.1[3]	--	--	--	15	No
Mercury, Total Recoverable	µg/L	0.00079	0.00028	0.050	--	--	0.050	0.051	--	2.0	Yes[5]
Nickel, Total Recoverable	µg/L	2.2	0.8	38[2]/25[3]	343[2]/225[3]	38[2]/25[3]	610	4,600	--	100	No
Pentachlorophenol	µg/L	0.3	<0.2	0.28	9.6	7.4	0.28	8.2	--	1	No[4]
Silver, Total Recoverable	µg/L	0.043	<0.1	1.9[2]/0.91[3]	1.9[2]/0.91[3]	--	--	--	8.5	100	No
TCDD-Equivalents	µg/L	4.2×10^{-8}	3.8×10^{-8}	1.3×10^{-8}	--	--	1.3×10^{-8}	1.4×10^{-8}	--	0.00001	No[4]
Toluene	µg/L	0.3	<0.1	150	--	--	6,800	200,000	--	150	No
2,4,6-Trichlorophenol	µg/L	0.4	<0.2	2.1	--	--	2.1	6.5	--	--	No
Zinc, Total Recoverable	µg/L	14	136	17	[1]	87[2]/57[3]	--	--	17	5,000	Yes

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.
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

Footnotes:
(1) 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 criteria.
(2) Criterion to be compared to the maximum effluent concentration.
(3) Criterion to be compared to the maximum upstream receiving water concentration.
(4) Pollutant does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives. See section IV.C.3 of the Fact Sheet (Attachment F).
(5) The Sacramento River from Knights Landing to the Delta, downstream of the discharge, is listed on the 2006 303(d) list as impaired for mercury. Therefore, this Order establishes a final, annual average mass loading limitation for mercury.

ATTACHMENT H – CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			Human Health Calculations[1]			Aquatic Life Calculations[1]											Final Limitations	
		HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA_{acute}	ECA $Multipler_{acute}$	LTA_{Acute}	$ECA_{chronic}$	ECA $Multipler_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multipler_{95}$	$AMEL_{AL}$	MDEL $Multipler_{99}$	$MDEL_{AL}$	AMEL	MDEL
Copper, Total Recoverable	µg/L	1,000	6.1	6.8[2]/4.4[3]	1,000	2.01	2,010	6.1	0.32	1.96	6.8[4]	0.53	3.58	1.96	1.55	3.1	3.11	6.1	3.1	6.1
Zinc, Total Recoverable	µg/L	5,000	17	87[2]/57[3]	5,000	1.66	8,277	17	0.45	7.49	87[4]	0.65	57	7.49	1.35	10	2.22	17	10	17

1 As described in section IV.C.2.d of the Fact Sheet (Attachment F), calculation of effluent limitations for the protection of human health and aquatic life are determined without the allowance of dilution credits.
2 Criterion to be compared to the maximum effluent concentration.
3 Criterion to be compared to the maximum upstream receiving water concentration.
4 ECA determined as described in section IV.C.2.c.ii of the Fact Sheet (Attachment F).

ATTACHMENT I – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

I. Background. Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.waterboards.ca.gov/iswp/index.html). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Regional Water Board is requiring the following monitoring:

A. Drinking water constituents. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.

B. Effluent and receiving water temperature. This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.

C. Effluent and receiving water hardness and pH. These are necessary because several of the CTR constituents are hardness and pH dependent.

D. Dioxin and furan sampling. Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment J. As described in section IV.C.3.b.ii of the Fact Sheet (Attachment F), the Regional Water Board is unable to determine if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above applicable water quality objectives. To collect the data necessary to determine the prevalence of 2,3,7,8-TCDD congeners in the effluent, monitoring of the 2,3,7,8-TCDD congeners will be required in this Order twice during the third year following the effective date of this Order, once during dry weather and once during wet weather. See Attachment J for more detailed requirements related to performing monitoring for the 2,3,7,8-TCDD congeners.

II. Monitoring Requirements.

A. Semi-Annual Monitoring. Semi-annual priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. Semi-annual monitoring shall be conducted for 1 year (two consecutive samples, evenly distributed throughout the year) during the third

year of the permit term, and the results of such monitoring be submitted to the Regional Water Board during the fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. **Semi-Annual Monitoring (dioxins and furans only).** Semi-annual monitoring is required twice during the third year following the effective date of this Order for dioxins and furans, once during dry weather and once during wet weather, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Regional Water Board in accordance with the monitoring schedule in Table E-8 of the Monitoring and Reporting Program.

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

D. **Sample type.** All effluent samples shall be taken as 24-hour flow proportioned composite samples. All receiving water samples shall be taken as grab samples.

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
			Basis	Criterion Concentration µg/L or noted[1]		
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
			Basis	Criterion Concentration µg/L or noted[1]		
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
23	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
			Basis	Criterion Concentration µg/L or noted[1]		
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
			Basis	Criterion Concentration µg/L or noted[1]		
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL (for fibers >10um)	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
			Basis	Criterion Concentration µg/L or noted[1]		
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/ 515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit µg/L or noted	Suggested Test Methods
			Basis	Criterion Concentration µg/L or noted[1]		
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/GCMS
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as $CaCO_3$)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO_3)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	^{o}F		
	Total Disolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

(1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.

(2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.

(3) - For haloethers

(4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22°C.

(5) - For nitrophenols.

(6) - For chlorinated naphthalenes.

(7) - For phthalate esters.

(8) - Basin Plan objective = 2 µg/L for Salt Slough and specific constructed channels in the Grassland watershed.

(9) - Criteria for sum of alpha- and beta- forms.

(10) - Criteria for sum of all PCBs.

(11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:

Method 1669: Sampling Ambient Water for Trace Metals at USEPA Water Quality Criteria Levels, USEPA; and

Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluoresence, USEPA

III. Additional Study Requirements

A. Laboratory Requirements. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code 13176 and must include quality assurance/quality control data with their reports (ELAP certified). In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided the laboratory institutes a Quality Assurance-Quality Control Program. A manual containing the steps followed in this program must be kept in the laboratory and must be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

B. Criterion Quantitation Limit (CQL). The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Table I-1 contains suggested analytical procedures. The Discharger is not required to use these specific procedures as long as the procedure selected achieves the desired minimum detection level.

C. Method Detection Limit (MDL). The method detection limit for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).

D. Reporting Limit (RL). The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

E. Reporting Protocols. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

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

2. Sample results less than the reported 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.

3. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may shortened to "Est. Conc.). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or – a percentage of the

reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.

4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

F. Data Format. The monitoring report shall contain the following information for each pollutant:

1. The name of the constituent.
2. Sampling location.
3. The date the sample was collected.
4. The time the sample was collected.
5. The date the sample was analyzed. For organic analyses, the extraction data will also be indicated to assure that hold times are not exceeded for prepared samples.
6. The analytical method utilized.
7. The measured or estimated concentration.
8. The required Criterion Quantitation Limit (CQL).
9. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
10. The laboratory's lowest reporting limit (RL).
11. Any additional comments.

ATTACHMENT J – DIOXIN AND FURAN SAMPLING

The CTR includes criteria for 2,3,7,8-tetrachlorodibenzo-pdioxin (2,3,7,8-TCDD). In addition to this compound, there are many congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) that exhibit toxic effects similar to those of 2,3,7,8-TCDD. The USEPA has published toxic equivalency factors (TEFs) for 17 of the congeners. The TEFs express the relative toxicities of the congeners compared to 2,3,7,8-TCDD (whose TEF equals 1.0). In June 1997, participants in a World Health Organization (WHO) expert meeting revised TEF values for 1,2,3,7,8-PentaCDD, OctaCDD, and OctaCDF. The current TEFs for the 17 congeners, which include the three revised values, are shown below:

Toxic Equivalency Factors (TEFs) for 2,3,7,8-TCDD Equivalents[1]

Congener	TEF
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

[1] Monitoring shall be conducted twice during the third year following the effective date of the permit, once during dry weather and once during wet weather.

The Discharger shall conduct effluent and receiving water monitoring for the 2,3,7,8-TCDD congeners listed above to assess the presence and amounts of the congeners being discharged and already present in the receiving water.

The Discharger shall report, for each congener, the analytical results of the effluent and receiving water monitoring, including the quantifiable limit and the method detection limit, and the measured or estimated concentration.

In addition, the Discharger shall multiply each measured or estimated congener concentration by its respective TEF value and report the sum of these values.