

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

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**ORDER NO. R5-2011-0090
NPDES NO. CA0082066**

**SIERRA PACIFIC INDUSTRIES, INC.
ANDERSON DIVISION
SHASTA COUNTY**

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

Table 1. Discharger Information

| | |
|---|---------------------------------|
| Discharger | Sierra Pacific Industries, Inc. |
| Name of Facility | Anderson Division |
| Facility Address | 19758 Riverside Avenue. |
| | Anderson, CA 96007 |
| | Shasta County |
| The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge. | |

The discharge by Sierra Pacific Industries, Inc., Anderson Division from the discharge points identified below are 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 |
|------------------------|--|---------------------------------|----------------------------------|------------------------|
| D-002 | Commingled process water and Storm Water | 40° 28' 23" N | 122° 19' 05" W | Sacramento River |

Table 3. Administrative Information

| | |
|--|---|
| This Order was adopted by the Regional Water Quality Control Board on: | 1 December 2011 |
| This Order shall become effective on: | 1 December 2011 |
| This Order shall expire on: | 1 December 2016 |
| The Discharger shall file a complete 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: | <u>180 days prior to the Order expiration date</u> |

IT IS HEREBY ORDERED, that Order No. **R5-2004-0100** is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

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 **1 December 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 | Sierra Pacific Industries, Inc. | |
| Name of Facility | Anderson Division | |
| Facility Address | 19758 Riverside Avenue | |
| | Anderson, CA 96007 | |
| | Shasta County | |
| Facility Contact, Title, and Phone | Shane Young, Division Manager | (530) 378-8350 |
| | Paula Braudway, Safety Coordinator | (530) 378-8350 |
| Mailing Address | P.O Box 10939 | |
| | Anderson, CA 96007 | |
| Type of Facility | SIC Code 2421 – Sawmills & Planing Mills | |
| | SIC Code 4911 – Electrical Generation | |
| Facility Design Flow | Not Applicable | |

II. FINDINGS

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

A. Background. Sierra Pacific Industries, Inc. (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2004-0100 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0082066. The Discharger submitted a Report of Waste Discharge (RWD), dated 6 November 2008 and applied for a NPDES permit renewal to discharge an unspecified volume of commingled process water and storm water from the Facility. The application was deemed complete on 21 November 2008.

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 is the owner and operator of Sierra Pacific Industries, Inc., Anderson Division Sawmill and Cogeneration Facility (hereinafter Facility), 150-million board foot sawmill complex in conjunction with a wood burning boiler for generation of electricity and steam for kiln heating, in the City of Anderson, Shasta County, in Section 9, T30N, R4W, MDB&M, as shown on Attachment B. (Assessor’s Parcel Nos. 050-100-15, 050-110-23, and 050-110-25). Attachment C provides a flow schematic of the Facility

The Facility consists of a sawmill, planer mill, millwork, drying kilns, wood fired cogeneration boiler for generation of electrical power and steam for kiln heating, paved log unloading and scaling yard, rough cut lumber storage area, bark processing and storage area, chip loading area, log deck, pole log deck, fabrication shop, truck shop, paved finished lumber storage areas and separate pole handling facilities which include a scaling yard and log deck.

Until recently, the Facility discharged a variable (based on rainfall) quantity of industrial storm water from the southern portion of the Facility to the Sacramento River. Now, this industrial storm water in addition to cogeneration process water, log deck recycle water, log deck storm water, and industrial storm water from the northern portion of the Facility is discharged to a network of onsite ponds. The onsite ponds consists of a 3.8 acre Large Fire Pond, a 0.53 acre Small Fire Pond, a 0.88 acre Log Deck Recycle Pond, a 9.90-acre Retention Pond, and the S.P Ditch.

In the summer of 2009 the Discharger installed a pump, aboveground pipe and a ditch that gravity flows into the Log Deck Recycle Pond from Discharge Point D-002. Effluent from Discharge Point D-002 consists of industrial storm water runoff and roof drainage from the Planer Mill, Stacker, Cooling Shed, and Drying Kiln. No industrial storm water has been discharged from Sierra Pacific Industries, Inc., Anderson Division since June 2009.

If the combined storage capacity of the ponds is projected to be exceeded due to a very high rainfall winter (e.g., annual rainfall greater than 100-year return frequency), then the Discharger would discharge subsequent industrial storm water from the southern portion of the Facility to the river through Discharge Point D-002. Cogen process water, log deck recycle water, log deck storm water, and industrial storm water from the northern portion of the Facility would continue to be stored in the ponds, and would not be discharged to the river.

Attachment C shows the location of Discharge Points D-001, D-002, and D-003 within the Redding Hydrologic Unit, Enterprise Flat Hydrologic Area (508.10) of the Redding Hydrologic Unit as defined by the interagency hydrologic map for the Sacramento Hydrologic Basin prepared by the Department of Water Resources (1986). Attachment B provides a topographic map of the Facility and surrounding area. 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 the 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 Water Code (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 I are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177. The surface water and land discharges authorized herein comply with CEQA as discussed in the Fact Sheet section III.B.

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 federal technology-based requirements based on Timber Products Processing Point Source Category 40 CFR Part 429 and Best Practical Control Technology (BPT) in accordance with Part 125, section 125.3.

40 CFR Part 429 contains effluent limitation guidelines for timber products processing point source category that are divided into sixteen subcategories. Specifically, Subpart A (Barking Subcategory), Subpart I (Wet Storage Subcategory), and Subpart K (Sawmills and Planing Mills Subcategory) are applicable. Any existing point source subject to these subparts shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT): there shall be no debris discharged and the pH shall be within the range of 6.0 to 9.0. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

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 Points | Receiving Water Name | Beneficial Use(s) |
|------------------|------------------------|--|
| D-002 | Sacramento River | <u>Existing:</u> Municipal and domestic water supply (MUN); Agricultural supply, including stock watering (AGR); Industry Service Supply (IND); Power Generation (POW); Water Contact Recreation (REC-1); Non-contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); Warm and Cold Migration of Aquatic Organisms (MIGR); Warm and Cold Spawning, Reproduction, and/or early Development (SPWN); Wildlife habitat (WILD); Navigation (NAV). |
| Unlined Ponds | Underlying Groundwater | <u>Potential:</u> Municipal and domestic water supply (MUN). Industrial process supply (PRO); Industrial service supply (IND); and Industrial power supply (POW) |

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 Keswick Dam to Cottonwood Creek is listed as a WQLS for unknown toxicity in the 303(d) list of impaired water bodies.

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 CWA section 101(a)(2), states: “it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1,

1983.” Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 CFR 131.3(e) defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. 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.

- 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 February 13, 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 April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the 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 May 18, 2000 with respect to the priority pollutant criteria promulgated by USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 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 a 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 one 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 does not include compliance schedules and interim effluent limitations.

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 as discussed in the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBEL 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 pollutants WQBEL 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, this Order requires additional information to determine if the permitted discharge and the proposed new discharge are consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board 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. As discussed in detail in the Fact Sheet, this permit is consistent with the anti-backsliding requirements of the CWA and federal regulations.
- 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 authorizes 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. This 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 section 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 subsections IV.B, IV.C, V.B, and VI.C 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.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R5-2004-0100 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 wastewater 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.
- E. The direct discharge of recycled water from log sprinkling and discharge of recycle pond water to surface waters or surface water drainage courses is prohibited.
- F. The discharge of wood treatment chemicals or stain control fungicides to surface waters or to groundwater is prohibited.
- G. The discharge of ash, bark, sawdust, wood, debris, or any other wastes recognized as originating from the facility to surface waters or surface water drainage courses is prohibited.
- H. The discharge of hazardous or toxic substances, including storm water treatment chemicals, grinding aid, solvents or petroleum products (i.e., oil, grease, gasoline, and diesel) to surface waters or groundwater is prohibited.
- I. No discharge shall occur from the new cogeneration facility until the CEQA process is complete, and any identified water quality mitigation measures are implemented,

effective, and maintained. Furthermore, no increased discharge shall occur from the new cogeneration facility until the Regional Water Board has determined that the new discharge meets the requirements of, or an exemption from, CCR Title 27, and the Regional Water Board has determined that the new discharge is consistent with the State and Federal antidegradation policies.

- J. Discharge of wastes classified as “hazardous” as defined in Section 2521(a) of Title 23, California Code of Regulations (CCR), Section 2510, et seq., or “designated”, as defined in Section 13173 of the California Water Code is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point D-002

1. Final Effluent Limitations – Discharge Point D-002

- a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point D-002 with compliance measured at Monitoring Locations EFF-002 as described in the Monitoring and Reporting Program

Table 6. Final Effluent Limitations Discharge Point D-002.

| Parameter | Units | Effluent Limitations | | | |
|----------------------------|----------------|----------------------|---------------|-----------------------|-----------------------|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | standard units | | | 6.5 | 8.5 |
| Settleable Solids | mL/L | 0.1 ¹ | 0.2 | | |
| Total Suspended Solids | mg/L | | 50 | | |
| Cadmium, total recoverable | ug/L | 0.02 | 0.05 | | |
| Copper, total recoverable | ug/L | 0.80 | 1.60 | | |
| Nickel | ug/L | 6.07 | 12.2 | | |
| Lead, total recoverable | ug/L | 0.14 | 0.28 | | |
| Zinc, total recoverable | ug/L | 2.58 | 5.17 | | |

¹ For calculating Monthly Averages, use Zero for Non-Detects (<0.1).

- 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 or more consecutive bioassays during the same discharge season.
- c. **Chronic Whole Effluent Toxicity.** There shall be no chronic whole effluent toxicity in the effluent discharge.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Sludge, Wood Waste, and/or Ash Storage

1. Collected screenings, sludge and other solids removed from liquid wastes, including pond sediments, shall be disposed of in a proper manner approved by the Executive officer and consistent with the Consolidated Regulations for treatment, storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Section 20005, et seq.
2. The storage of sludge, wood waste, and ash at the facility shall be done in a manner to prevent nuisance, pollution or impairment of beneficial uses of the Sacramento River.
3. Any proposed change in sludge or ash use or disposal practices shall be reported to the Executive Officer at least 90 days in advance of the change.
4. Ash removed from the Sierra Pacific Industries, Inc. Anderson Division facility shall be:
 - If non-hazardous, tilled into agricultural fields for soil amendment; or
 - Disposed in a dedicated unit consistent with Title 27, Section 20200(d); or
 - Disposed in a Class III landfill consistent with Title 27, Section 20220(d); or
 - Disposed of in accordance with the Department of Food & Agriculture under the “Commercial Fertilizing Materials License” License No. 12724.
 - Any other use shall constitute disposal and shall be subject to Title 27, CCR requirements.

C. Reclamation Specifications – Not Applicable

D. Internal Discharge Limitations – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on the Basin Plan water quality objectives contained in the Basin Plan and are required as 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. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5, nor raised above 8.5.
9. **Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods prescribed in *Standard Methods for the Examination of Water and Wastewater, 18th Edition*, or other equivalent methods approved by 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 California Code of Regulations, Title 22, Division 4, Chapter 15.
 - g. Thiobencarb to be present in excess of 1.0 µg/L.
10. **Radioactivity:**
 - a. Radionuclides to be present in concentrations that are harmful/deleterious 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.

11. **Salinity.** The salinity-related objectives described below:

- a. **Chloride.** The recommended agricultural water quality goal that would apply the narrative chemical constituent objective is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organisms.
- b. **Electrical Conductivity.** The recommended agricultural water quality goal that would apply the narrative chemical constituent objective, is 700 umhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organisms.
- c. **Total Dissolved Solids.** The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organisms.
- d. **Sulfate.** The secondary MCL for sulfate is 250 mg/L.

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

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

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

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

16. **Temperature.** The natural temperature to be increased by more than 5°F (3°C).

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

18. **Turbidity.** Waters shall be free in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributed to controllable water quality factors shall not exceed the following limits:

- a. Shall not exceed 2 Nephelometric turbidity Unit (NTU) where natural turbidity is less than 1 NTU;

- b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
- c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
- d. Shall not increase by more than 10 NTU where natural turbidity is between 50 and 100 NTUs;
- e. Shall not increase by more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations.

- 1. Release of waste constituents from any portion of the Facility shall not cause groundwater to:
 - b. Contain any of the following constituents in concentrations greater than the maximum concentrations listed, or cause an increase above natural background quality greater than that listed, whichever is less, or contain any pollutants not listed in concentrations greater than natural background quality.

Table 7. Groundwater Limitations

| Constituent | Units | Increase Over Background | Maximum Limitation |
|---|-------------|--------------------------|--------------------|
| Arsenic | ug/L | 0.2 | 10 |
| Color | Color Units | 8.3 | 15 |
| Chloroform | ug/L | 0.03 | 80 |
| Chromium | ug/L | 0.1 | 50 |
| Copper | ug/L | 0.1 | 1000 |
| Lead | ug/L | 0.02 | 15 |
| Nickel | ug/L | 0.1 | 100 |
| Zinc | ug/L | 0.5 | 5000 |
| Tannins and Lignins | mg/L | 1.4 | N/A |
| Iron | ug/L | N/A | 300 |
| Chloride | mg/L | N/A | 250 |
| Manganese | ug/L | N/A | 50 |
| Total Coliform Organisms | MPN/100 mL | 0 | <2.2 |
| Electrical Conductivity @ 25°C ¹ | µmhos/cm | 7 | 700 |
| Total Dissolved Solids ¹ | mg/L | N/A | 450 |
| Nitrate as N | mg/L | N/A | 10 |
| Sodium | mg/L | N/A | 20 |
| Sulfate | mg/L | N/A | 250 |

¹ A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

- c. Exhibit a pH of less than 6.5 or greater than 8.5 pH units.
- d. Impart taste, odor, chemical constituents, toxicity, or color that creates nuisance or impairs any beneficial use.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all (federal NPDES standard conditions from 40 CFR Part 122) Standard Provisions 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 ninety 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 and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.
- 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.

- I. 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 (530) 224-4845 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 (MRP) Requirements

1. 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 section 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.
- b. **Priority Pollutants.** 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. **Constituent Study.** There are indications that the discharge may contain constituents (e.g., aluminum, iron, manganese) that have reasonable potential to cause or contribute to an exceedance of water quality objectives. This Order requires the Discharger to conduct monitoring for these constituents as outlined in the Monitoring and Reporting Program (Attachment E). This reopener provision allows the Regional Water Board to reopen this Order for additional effluent limitations and requirements for these constituents if after review of the

study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective.

- d. **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, and other applicable pollutants such as aluminum. 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 cadmium, copper, lead, nickel, 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.
- e. **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.
- f. **CEQA.** This Order may be reopened to make any appropriate findings, and require implementation of any identified water quality mitigation measures as a result of the CEQA process for the new cogeneration facility.
- g. **Title 27 Exemption.** Once the results of groundwater monitoring and the Title 27 Exemption Analysis Update required by this Order are submitted, this Order may be reopened to add or modify Findings, limits, or other conditions as appropriate.
- h. **Antidegradation.** Once the results of groundwater monitoring and the Antidegradation Analysis Update required by this Order are submitted, this Order may be reopened to add or modify Findings, limits, or other conditions as appropriate.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Title 27 Exemption Analysis Update.** Within 18 months of the effective date of this Order, the Discharger shall submit a Title 27 Exemption Analysis Update (Title 27 Update). The Title 27 Update shall present the results of the land discharge and groundwater monitoring to date, and explain whether or not the conclusions reached in the original Title 27 Exemption Analysis included in the Report of Waste Discharge are valid. The Title 27 Update shall address both the existing discharge and the proposed new discharge. After reviewing the Title 27 Update, the Regional Water Board may reopen this Order as described in the Reopener Provisions. The Regional Water Board may find that a Title 27 exemption is or is not appropriate, or that additional information is necessary.

- b. **Antidegradation Analysis Update.** Within 18 months of the effective date of this Order, the Discharger shall submit an Antidegradation Analysis Update. The Antidegradation Analysis Update shall present the results of the land discharge and groundwater monitoring to date, and explain whether or not the conclusions reached in the original Antidegradation Analysis included in the Report of Waste Discharge are valid. The Antidegradation Analysis Update shall address both the existing discharge and the proposed new discharge. After reviewing the Antidegradation Analysis Update, the Regional Water Board may reopen this Order as described in the Reopener Provisions. The Regional Water Board may find that the existing discharge, and the proposed new discharge are or are not consistent with the State and Federal antidegradation policies, or that additional information is necessary.
- c. **Groundwater Monitoring Network.** To determine compliance with the groundwater limitations contained in this Order, and to provide information for the Title 27 Exemption Analysis Update and Antidegradation Analysis Update required by this Order, the Discharger shall:
1. Install an adequate groundwater monitoring network. The groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of monitoring wells downgradient of the treatment, storage, and disposal units that do or may release waste constituents to groundwater within 6 months of the effective date of this Order;
 2. Collect groundwater data in accordance with the Monitoring and Reporting Program in Attachment E of this Order; and
 3. Submit a report proposing updated numerical groundwater limitations sufficient to ensure that groundwater does not contain pollutants in concentrations higher than determined appropriate through the Title 27 Exemption Analysis and the Antidegradation Analysis within 18 months of the effective date of this Order.
- d. **Log Yard Monitoring Plan.** The Discharger shall develop a work plan for conducting log yard runoff monitoring and BMPs implementation within the area of the P&H Portal Crane. The work plan shall be submitted to the Regional Water Board for approval **by 15 September 2012**. The intent is to prevent possible impacts to groundwater due to the high organic deposition and develop BMPs as necessary. The monitoring and BMPs implementation will begin following approval and will continue as approved in the work plan.
- e. **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 approval by the Executive Officer.
- f. **Storm Water Pollution Controls.**

- i. Prior to **15 October** of each year, the Discharger shall implement necessary erosion control measures and any necessary construction, maintenance, or repairs of drainage and erosion control facilities.
 - ii. The Discharger has prepared a Storm Water Pollution Prevention Plan (SWPPP) containing best management practices to reduce pollutants in the storm water discharges. The Discharger shall review and amend as appropriate the SWPPP whenever there are changes that may affect the discharge of significant quantities of pollutants to surface water, if there are violations of this permit, or if the general objective of controlling pollutants in the storm water discharges has not been achieved. The amended SWPPP shall be submitted prior to **15 October** in the year in which it was prepared.
 - iii. By **1 July** of each year, the Discharger shall submit a Storm Water Annual Report for the previous fiscal year (1 July to 30 June). The report shall be signed in accordance with Standard Provisions V.B and may be submitted using the General Industrial Storm Water Annual Report Form, provided by the State Water Resources Control Board, or in a format that contains equivalent information.
- g. **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 exceeding the numeric monitoring trigger during accelerated monitoring established in this Provision, 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 reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.
- i. **Toxicity Reduction Evaluation (TRE) Workplan.** Within 90 days of the effective date of this Order, the Discharger shall submit to the Regional Water Board a TRE Work Plan 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 guidance¹ and be of adequate detail to

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

allow the Discharger to immediately initiate a TRE as required in this Provision.

- ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address the effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.
- iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is $> 1 \text{ TUc}$ (where $\text{TUc} = 100/\text{NOEC}$). 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 adequate evidence of toxicity, the Executive Officer may require that the Discharger initiate a TRE.
 - b) If the source(s) of the toxicity is easily identified (i.e. 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 initiate a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of the test results exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:
 - 1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including 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.

h. **Effluent and Receiving Water Characterization Study.** An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third year of this permit term, the Discharger shall conduct monitoring of the effluent at EFF-002 and of the receiving water at RSW-001 for all priority pollutants and other constituents of concern as described in Attachment I. Where this monitoring duplicates the locations and frequencies of monitoring otherwise required in the Monitoring and Reporting Program, duplicate monitoring is not required. The report shall be completed in conformance with the following schedule.

| <u>Task</u> | <u>Compliance Date</u> |
|---------------------------------------|--|
| i. Submit Work Plan and Time Schedule | No later than 2 years 6 months from adoption of this Order |
| ii. Conduct monitoring | During third year of permit term |
| iii. Submit Final Report | 6 months following completion of final monitoring event |

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 from D-002 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 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.

4. Construction, Operation and Maintenance Specifications

a. Pond Operating Requirements.

- i. The treatment facility shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- ii. Ponds shall be managed to prevent breeding of mosquitoes. For example,
 - a) An erosion control program to assure that small coves and irregularities are not created around the perimeter of the water surface.
 - b) Weeds to be minimized;
 - c) Vegetation, debris, and dead algae do not accumulate on the water surface; and
 - d) Other control programs in consultation with mosquito abatement.
- iii. Freeboard in the network of ponds shall not be less than 2 feet (measured vertically to the lowest point of overflow) for ponds that could discharge to surface waters (e.g., log deck recycle pond and Retention pond), except if lesser freeboard does not threaten the integrity of the ponds, no overflow of the ponds occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

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

6. Other Special Provisions

a. Sediment, Sludge, Topsoil, and Overburden Management

- i. Collected screenings, residual sludge, and other solids removed from liquid wastes, including pond sediments, shall be disposed of in a manner approved by the Executive officer and consistent with the Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (e.g. landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by the Regional Water Board will satisfy these specifications.
- ii. The storage of pond sediments shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.
- iii. Any proposed change in pond sediment or sludge disposal or storage practices shall be reported to the Executive Officer at least 90 days in advance of the change.

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION – Not Applicable

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.

Averaging Period

A minimum of four samples per day from each upstream and downstream station for a period of up to 4 days during discharge. Samples collected for averaging must be spaced at least 3 hours apart.

Best Practicable Treatment or Control (BPTC)

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

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

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

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

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

Detected, but Not Quantified (DNQ)

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

Dilution Credit

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

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

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

Estimated Chemical Concentration

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

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in 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)

MDEL 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 title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

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

Mixing Zone

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

Not Detected (ND)

Sample results less than the laboratory's MDL.

Ocean Waters

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

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

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

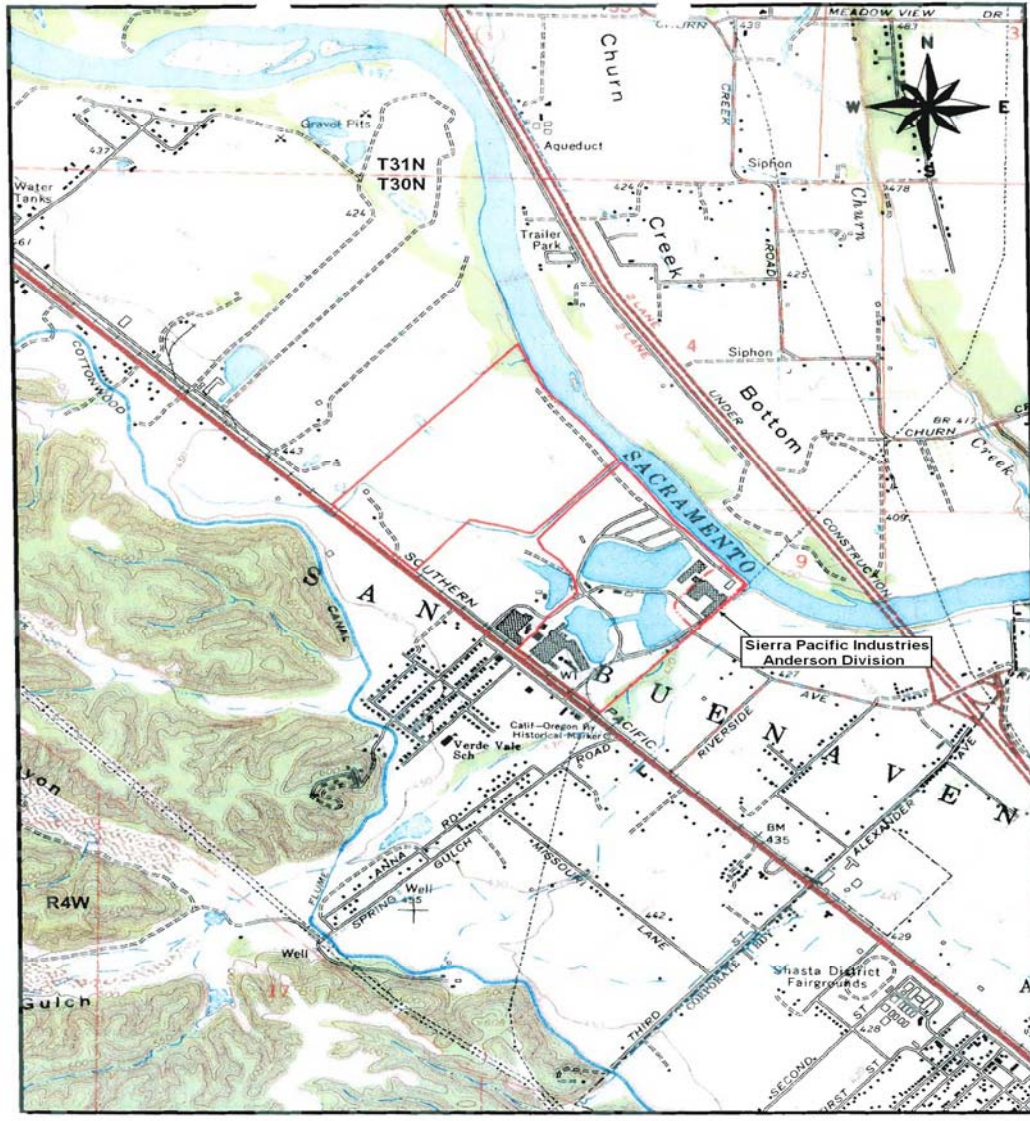
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE)

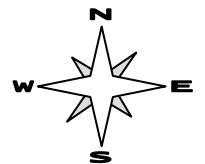
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection 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 – TOPOGRAPHIC MAPS

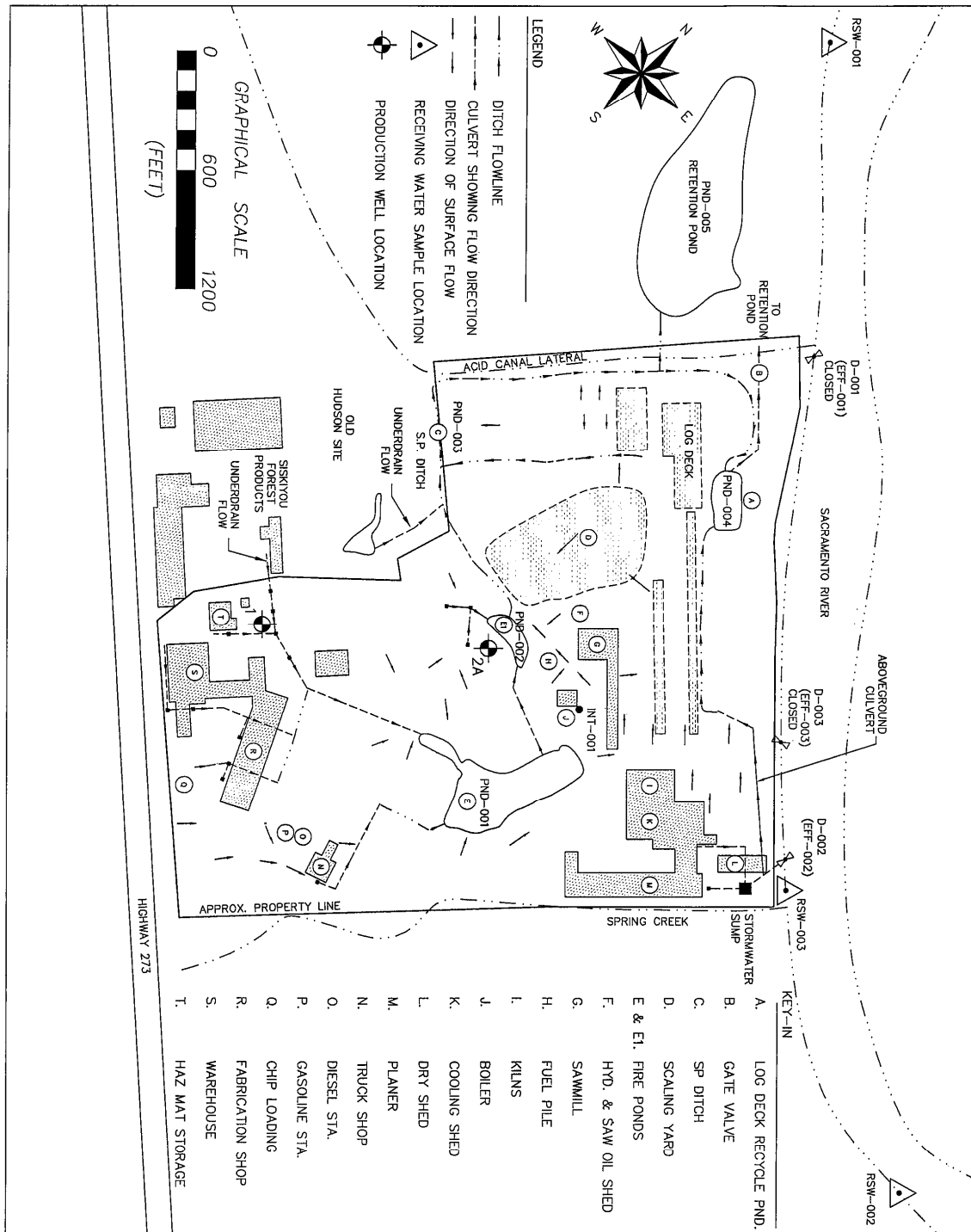


COTTONWOOD, CALIFORNIA
U.S.G.S TOPOGRAPHIC MAP
7.5 MINUTE QUADRANGLE
Photorevised 1965
Not to scale

Section 9, T30N, R4W, MDB&M,
SIERRA PACIFIC INDUSTRIES, INC.
ANDERSON DIVISION



ATTACHMENT C – FLOW SCHEMATICS



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 Water Code, 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); 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 five 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 may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and
 - c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 122.22(b)(3).)
5. 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).)
 6. 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. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 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 section 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 ($\mu\text{g/L}$) (40 CFR 122.42(a)(1)(i));
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 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 section 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 ($\mu\text{g/L}$) (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 (MRP)

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 (CFR) 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 state 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, formally the Department of Health Services). Laboratories that perform sample analysis 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 for any onsite field measurements such as pH, turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility 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.
- 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 (include Latitude and Longitude when available) |
|------------------------------------|---------------------------------|---|
| D-001 | EFF-001 | Outfall from SPI Ditch – (sealed) Latitude 40° 28' 42" N and Longitude 122° 19' 28 W |
| D-002 | EFF-002 | Southern storm water drainage north of Spring Gulch Creek Latitude 40° 28' 23" N and Longitude 122° 19' 05 W |
| D-003 | EFF-003 | Outfall from the south end of the log deck – (sealed) Latitude 40° 28' 29" N and Longitude 122° 19' 13 W |
| Receiving Surface Water Upstream | RSW-001 | Sacramento River, approximately 1,600' above the outfall from the ACID canal and discharge point D-001. RSW-001 was previously located approximately 100' above the outfall from Discharge point D-001. |
| Receiving Surface Water Downstream | RSW-002 | Sacramento River, approximately 1,600' south of Spring Gulch Creek. |
| Receiving Surface Water Downstream | RSW-003 | Sacramento River, approximately 50' below monitoring location EFF-002. |
| D-004 | INT-001 | Outfall from Cogeneration Plant to Large Fire Pond |
| | PND-001 | Large Fire Pond - Southwest of Cogeneration Plant |
| | PND-002 | Small Fire Pond - West of Sawmill |
| | PND-003 | S.P. Ditch - Both east and north surrounding Log Deck |
| | PND-004 | Log Deck Recycle Pond - East of log deck, adjacent to Sacramento River |
| | PND-005 | 9.9- Acre Retention Pond - North of Log Deck and ACID Canal |

III. INFLUENT MONITORING REQUIREMENTS - NOT APPLICABLE

A. Monitoring Location - Not Applicable

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-002

1. The Discharger shall monitor the outfall from the southern storm water drainage north of Spring Gulch Creek at EFF-002, when discharge occurs. 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 Location EFF-002.

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method and (Minimum Level, units), respectively |
|--------------------------------|------------|-------------------|----------------------------|--|
| Estimated Flow | cfs | Visual | Daily | 1 |
| COD | mg/L | Grab | 2/Month ^{7,8} | 1 |
| Electrical Conductivity @ 25°C | umhos/cm | Grab | 2/Month ^{7,8} | 1 |
| pH | pH units | Grab | 2/Month ^{7,8} | 1 |
| Settleable Solids | mL/L | Grab | 2/Month ^{7,8} | 1 |
| Tannins & Lignins | mg/L | Grab | 2/Month ^{7,8} | 1 |
| Total Suspended Solids | mg/L | Grab | 2/Month ^{7,8} | 1 |
| Turbidity | NTU | Grab | 2/Month ^{7,8} | 1 |
| Hardness | mg/L | Grab | 2/Month ^{7,8} | 1 |
| Cadmium, total recoverable | ug/L | Grab | 2/Month ^{7,8} | 1 |
| Copper, total recoverable | ug/L | Grab | 2/Month ^{7,8} | 1 |
| Nickel, total recoverable | ug/L | Grab | 2/Month ^{7,8} | 1 |
| Lead, total recoverable | ug/L | Grab | 2/Month ^{7,8} | 1 |
| Zinc, total recoverable | ug/L | Grab | 2/Month ^{7,8} | 1 |
| Oil & Grease | mg/L | Grab | 2/Month ^{7,8} | 1 |
| Alkalinity | mg/L | Grab | 1/Monthly ⁸ | 1 |
| Acute Toxicity | % Survival | Grab | 1/Monthly ⁸ | |
| Aluminum | mg/L | Grab | 1/Monthly ⁸ | 1 |
| Iron | mg/L | Grab | 1/Monthly ⁸ | 1 |
| Manganese | mg/L | Grab | 1/Monthly ⁸ | 1 |
| Chloride | mg/L | Grab | 1/Monthly ⁸ | 1 |
| Sulfate | mg/L | Grab | 1/Monthly ⁸ | 1 |
| Total Dissolved Solids | mg/L | Grab | 1/Monthly ⁸ | 1 |
| Chronic Toxicity | % Survival | Grab | 1/Year ⁸ | |
| Priority Pollutants | ug/L | Grab ² | 1/Year ^{4,8} | 1,3,6 |

- ¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
- ² Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
- ³ 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. Sampling and analysis of Bis (2-ethylhexyl) phthalate shall be conducted using ultra-clean techniques that eliminate the possibility of sample contamination.
- ⁴ Shall be conducted concurrently with upstream receiving water monitoring for hardness (as CaCO₃) and pH.
- ⁶ 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.
- ⁷ No more frequently than daily.
- ⁸ Initial samples shall be collected during the first hour from the first discharge after the dry season.

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 as specified in Table E-2.
 2. Sample Types – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-002.
 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 three species chronic toxicity testing as specified in Table E-2.
 2. Sample Types – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at effluent monitoring location EFF-002 as specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the 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 testing, it is not necessary to perform the test using a dilution series. The test 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).

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 Special Provisions at section VI.2.a.iii of this Order)

- C. **WET Testing Notification Requirements.** The Discharger shall notify the Regional Water Board within 24-hrs 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:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS - NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor the Sacramento River at monitoring locations RSW-001 and RSW-002, when discharge occurs from D-002, as follows:

Table E-4. Receiving Water Monitoring Requirements RSW-001 and RSW-002

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method and (Minimum Level, units), respectively |
|--------------------------------|----------|---------------------|---------------------------------------|--|
| Estimated Flow | cfs | Visual | Daily during discharge ^{1,7} | 2 |
| Electrical Conductivity @ 25°C | umhos/cm | Grab | 2/Month ¹ | 2 |
| pH | pH units | Grab | 2/Month ¹ | 2 |
| Turbidity | NTU | Grab | 2/Month ¹ | 2 |
| Hardness | mg/L | Grab | 2/Month ¹ | 2 |
| Dissolved Oxygen | mg/L | Grab | 2/Month ¹ | 2 |
| Alkalinity | mg/L | Grab | 1/Year ^{1,7} | 2 |
| Aluminum | mg/L | Grab | 1/Year ^{1,7} | 2 |
| Iron | mg/L | Grab | 1/Year ^{1,7} | 2 |
| Manganese | mg/L | Grab | 1/Year ^{1,7} | 2 |
| Chloride | mg/L | Grab | 1/Year ^{1,7} | 2 |
| Sulfate | mg/L | Grab | 1/Year ^{1,7} | 2 |
| Total Dissolved Solids | mg/L | Grab | 1/Year ^{1,7} | 2 |
| Priority Pollutants | ug/L | Grab ^{3,6} | 1/Year ^{1,4,7} | 2,5 |

¹ Samples shall be collected during the same sampling event as the effluent discharge samples.
² Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
³ Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
⁴ Priority pollutants shall be sampled annually following the date of permit adoption and shall be conducted concurrently with upstream receiving water monitoring for hardness (as CaCO₃) and pH.
⁵ Detection limits shall be at or below 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).
⁶ 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.
⁷ RSW-001 only.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions through the reach bounded by RSW-001 and RSW-002. Attention shall be given to the presence or absence of:
 - a. Upstream Flow
 - b. Visible films, sheens or coatings
 - c. Floating or suspended matter
 - d. Bottom deposits
 - e. Odor
 - f. Aquatic life
 - g. Discoloration
 - h. Fungi, slimes, or objectionable growths

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

B. Monitoring Location RSW-001 and RSW-003

1. To detect any indirect impacts from the network of ponds, the Discharger shall monitor the Sacramento River at monitoring location RSW-001 and RSW-003 as follows:

Table E-5. Receiving Water Monitoring Requirements RSW-001 and RSW-003

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method and (Minimum Level, units), respectively |
|--------------------------------|----------|-------------|----------------------------|--|
| Electrical Conductivity @ 25°C | umhos/cm | Grab | 1/Quarter ¹ | ² |
| pH | pH units | Grab | 1/Quarter ¹ | ² |
| Turbidity | NTU | Grab | 1/Quarter ¹ | ² |
| Tannins & Lignins | mg/L | Grab | 1/Quarter ¹ | ² |

¹ Samples shall be collected during the same sampling event as the pond monitoring samples.
² Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions through the reach bounded by RSW-001 and RSW-002. Attention shall be given to the presence or absence of:
 - a. Upstream Flow
 - b. Visible films, sheens or coatings
 - c. Floating or suspended matter
 - d. Bottom deposits
 - e. Odor
 - f. Aquatic life
 - g. Discoloration
 - h. Fungi, slimes, or objectionable growths

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

IX. OTHER MONITORING REQUIREMENTS

A. Pond Monitoring PND-001, PND-004, and PND-005

1. The large fire pond, log deck recycle pond, and the retention pond, at the facility shall be inspected on a regular basis to check for failure and/or leakage. The

following shall constitute the monitoring program for the ponds. The results shall be submitted with the monthly monitoring report.

Table E-6. Large Fire Pond, Log Deck Recycle Pond, and Retention Pond Monitoring Requirements.

| Parameters | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method and (Minimum Level, units), respectively |
|--|---------------|---------------------|----------------------------|--|
| Freeboard Depth ⁸ | Feet & inches | Visual | 1/Week | 2 |
| Dissolved Oxygen | mg/L | Grab | 1/Quarter | 2 |
| pH | units | Grab | 1/Quarter | 2 |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Quarter | 2 |
| Tannins & Lignins | mg/L | Grab | 1/Quarter | 2 |
| Chloride | mg/L | Grab | 1/Year | 2 |
| COD | mg/L | Grab | 1/Year | 2 |
| Oil & Grease | mg/L | Grab | 1/Year | 2 |
| Sulfate | mg/L | Grab | 1/Year | 2 |
| Total Dissolved Solids | mg/L | Grab | 1/Year | 2 |
| Aluminum | mg/L | Grab | 1/Year | 2 |
| Iron | mg/L | Grab | 1/Year | 2 |
| Manganese | mg/L | Grab | 1/Year | 2 |
| General Minerals ¹ | mg/L | Grab | 1/Year | 2 |
| Priority Pollutant Metals ⁴ | ug/L | Grab | 1/Year | 2,6 |
| Priority Pollutants | ug/L | Grab ^{3,7} | 1/Life of Permit | 2,6 |

¹ General minerals include: bicarbonate, carbonate, calcium, chloride, magnesium, nitrate, potassium, silica, sodium and sulfate.
² Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
³ Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
⁴ Priority pollutant metals include: antimony, arsenic, beryllium, cadmium, chromium (total), chromium (VI), copper, lead, mercury, nickel, selenium, silver, thallium, zinc, and cyanide.
⁶ Detection limits shall be at or below 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).
⁷ 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.
⁸ Freeboard is only required in the recycle and retention ponds.

2. In conducting pond monitoring, a log shall be kept of the pond conditions. Attention shall be given to the presence or absence of:
- a. Visible films, sheens or coatings
 - b. Floating or suspended matter
 - c. Odor
 - d. Discoloration
 - e. Fungi, slimes, or objectionable growths

B. Groundwater Monitoring

Following the installation and development of groundwater monitoring wells at Facility, the following shall constitute the monitoring program for the monitoring wells. The results shall be submitted with the monthly monitoring report.

Table E-7. Groundwater Monitoring Requirements

| Constituent | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method and (Minimum Level, units), respectively |
|--------------------------|--------------------------------|-------------|--|--|
| Groundwater elevation | Feet & 100 th , MSL | Grab | Quarterly | |
| Temperature | Degrees C | Grab | | |
| Electrical Conductivity | umhos/cm | Grab | | |
| pH | pH Units | Grab | | |
| Turbidity | mg/L | Grab | | |
| Color | Color Units | Grab | | |
| TOC | mg/L | Grab | | |
| COD | mg/L | Grab | | |
| Chloride | mg/L | Grab | | EPA 300.0 |
| Nitrate (as N) | mg/L | Grab | | EPA353.1 |
| Sodium | mg/L | Grab | | |
| Sulfate | mg/L | Grab | | EPA6010 |
| Tannins & Lignins | mg/L | Grab | | |
| Total Dissolved Solids | mg/L | Grab | | EPA 160.1 |
| Total Kjehldal Nitrogen | mg/L | Grab | | |
| Organics ¹ | ug/L | Grab | Quarterly 1 st year, Once every 2 years thereafter | EPA 8270 |
| Chloroform | ug/L | Grab | | |
| Total Coliform Organisms | MPN | Grab | | |
| Alkalinity | mg/L | Grab | | |
| Bicarbonate | mg/L | Grab | | EPA 6010 |
| Carbonate | mg/L | Grab | | EPA 6010 |
| Calcium | mg/L | Grab | | EPA 6010 |
| Magnesium | mg/L | Grab | | EPA 6010 |
| Potassium | mg/L | Grab | | EPA 6010 |
| Sodium | mg/L | Grab | | EPA 6010 |
| Metals ² | ug/L | Grab | | EPA 6010 |
| Arsenic | ug/L | Grab | | EPA 7061 |
| Mercury | ug/L | Grab | | EPA 7061 |
| Lead | ug/L | Grab | | EPA 7421 |
| Nickel | ug/L | Grab | | EPA 7520 |
| Selenium | ug/L | Grab | | EPA 7741 |
| Thallium | ug/L | Grab | EPA 7841 | |

¹ Organics include phenols, cresols, pentachlorophenol, and tetrachlorophenol

² Metals include cadmium, chromium (total and Hexavalent), copper, iron, manganese, and zinc.

C. Cogeneration Plant Discharge INT-001.

Internal waste discharge samples from the cogeneration plant shall be collected at the point of discharge to the fire pond. The following shall constitute the monitoring program for the cogeneration plant. The results shall be submitted with the monthly monitoring report.

Table E-8. Cogeneration Discharge Sampling Requirements INT-001.

| Parameters | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method and (Minimum Level, units), respectively |
|--------------------------------|----------|---------------------|----------------------------|--|
| Flow | gpd | Cumulative | Monthly Measurement | 2 |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Month ¹ | 2 |
| Total Dissolved Solids | mg/L | Grab | 1/Month ¹ | 2 |
| pH | units | Grab | 1/Month ¹ | 2 |
| COD | mg/L | Grab | 1/Year ¹ | 2 |
| Oil & Grease | mg/L | Grab | 1/Year ¹ | 2 |
| Turbidity | NTU | Grab | 1/Year ¹ | 2 |
| General Minerals ⁶ | mg/L | Grab | 1/Year ¹ | 2 |
| Priority Pollutants | ug/L | Grab ^{3,5} | 1/Year ¹ | 2,4 |

- ¹ Samples shall be collected during the same sampling event as the pond samples.
- ² Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
- ³ Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
- ⁴ Detection limits shall be at or below 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).
- ⁵ 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.
- ⁶ General minerals include: bicarbonate, carbonate, calcium, chloride, magnesium, nitrate, potassium, silica, sodium and sulfate.

E. Precipitation Monitoring

The daily precipitation at the Sierra Pacific Industries, Inc., Anderson Division facility shall be recorded on weekdays and weekends. The reading shall be taken at the same time each day and submitted as follows:

| Constituent | Units | Type of Sample | Sampling Frequency | Reporting Frequency |
|---------------|------------------|----------------|--------------------|---------------------|
| Precipitation | Inches (+/- 0.1) | Visual | Daily | Monthly |

F. Aboveground Petroleum Storage Monitoring

The Discharger shall visually inspect the aboveground petroleum storage tanks at the facility, as required by the facility's Spill Prevention Control and Countermeasures Plan.

A report of the inspection shall be submitted. In the event of a petroleum release, a report shall be submitted describing the corrective action that was taken to remediate and dispose of the contaminated soil. The results shall be submitted with the monthly monitoring report.

G. Ash Monitoring

The Discharger shall keep a log describing the quantities of fly ash and bottom ash generated, stored, and removed from the facility. The log shall identify the disposal location or soil amendment application area. For soil amendment areas, the volume of ash applied and acreage shall be included. A representative composite sample of the ash shall be tested quarterly for total and dissolved constituents. Dissolved constituents shall be obtained using the Waste Extraction Test (WET) described in the CCR, Title 22, Division 4.5, Chapter 11, Article 3. Note that deionized water is not an acceptable extract. The extract shall be analyzed for the following. By **1 February** of each year, the analytical results and the above information shall be summarized and submitted in a report.

Table E-9. Ash Monitoring Requirements.

| Parameter | Units | Sample Type | Minimum Sampling Frequency |
|---|-------------|-------------|------------------------------------|
| Total Organic Carbon | mg/kg | Composite | 1/Quarter |
| Total Dissolved Solids | mg/L | Composite | 1/Quarter |
| Electrical Conductivity at 25C | umhos/cm | Composite | 1/Quarter |
| Moisture Content | % Solids | Composite | 1/Quarter |
| pH | units | Composite | 1/Quarter |
| Aluminum | mg/kg; µg/L | Composite | 1/Quarter |
| Barium | mg/kg; µg/L | Composite | 1/Quarter |
| Boron | mg/kg; µg/L | Composite | 1/Quarter |
| Cobalt | mg/kg; µg/L | Composite | 1/Quarter |
| Iron | mg/kg; µg/L | Composite | 1/Quarter |
| Manganese | mg/kg; µg/L | Composite | 1/Quarter |
| Molybdenum | mg/kg; µg/L | Composite | 1/Quarter |
| Vanadium | mg/kg; µg/L | Composite | 1/Quarter |
| General Minerals ¹ | mg/kg; mg/L | Composite | 1/Quarter |
| Priority Pollutant Metals ² | mg/kg; µg/L | Composite | 1/Quarter |
| 2,3,7,8-TCDD and congeners ³ | pg/g; pg/L | Composite | Once during the life of the permit |

¹ General minerals include: bicarbonate, carbonate, calcium, chloride, magnesium, nitrate, potassium, silica, sodium and sulfate.

² Antimony, arsenic, beryllium, cadmium, chromium III, chromium VI, copper, cyanide, lead, mercury, nickel, selenium, silver, thallium, zinc

³ EPA Method 1613

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. **Toxic Chemical Release.** 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-10. Monitoring Periods and Reporting Schedule

| Sampling Frequency | Monitoring Period Begins On... | Monitoring Period | SMR Due Date |
|--------------------|--|---|---|
| Continuous | <First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month> | All | Submit with monthly SMR |
| 1/Hour | <First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month> | Hourly | Submit with monthly SMR |
| 1/Day | <First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month> | (Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling. | Submit with monthly SMR |
| 1/Week | <First Sunday of the calendar month following the permit effective date or on permit effective date if on a Sunday> | Sunday through Saturday | Submit with monthly SMR |
| 1/Month | <First day of calendar month following permit effective date or on permit effective date if that date is first day of the month> | First day of calendar month through last day of calendar month | First day of the second month following month of sampling |
| 1/Quarter | Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date | 1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December | 1 May 1 August 1 November 1 February |
| 2/Year | Closest of January 1 or July 1 following (or on) permit effective date | 1 January through 30 June 1 July 1 through 31 December | 1 August 1 February |
| 1/Year | January 1 following (or on) permit effective date | 1 January through 31 December | 1 February |
| 1/ 2-Years | January 1 following (or on) permit effective date | 1 st two years of permit, and 2 nd two years of permit | 1 February |

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 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 report 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 (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the 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 the data in 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
415 Knollcrest Drive, Suite 100
Redding, CA 96002

- 8. Reports must clearly show when discharging to EFF-002. Reports must show the date and time that the discharge started and stopped at each location.

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:

| | |
|---|--|
| State Water Resources Control Board Division of Water Quality c/o DMR Processing Center Post Office Box 100 Sacramento, CA 95812-1000 | State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 th Floor Sacramento, CA 95814 |
|---|--|

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

D. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in the Special Provisions contained in section VI of the Order, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.
2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, BPTC, Salinity Evaluation and Minimization Plan, PMP, and Log Yard Flushing Study by the Special Provisions VI.C.2. of this Order. The Discharge shall report the progress in satisfaction of compliance schedule dates specified in the Special Provisions at section VI.C.7 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 and/or in compliance with SMR reporting requirements described in subsection X.B.5 above.
3. 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.
4. **Annual Operations Report.** By 1 July of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
 - a. The names and telephone numbers of persons to contact regarding the facility for emergency and routine situations.
 - b. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - c. 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 | 5A452015003 | |
| Discharger | Sierra Pacific Industries, Inc. | |
| Name of Facility | Anderson Division | |
| Facility Address | 19758 Riverside Avenue | |
| | Anderson, CA 96007 | |
| | Shasta County | |
| Facility Contact, Title and Phone | Shane Young, Division Manager | (530) 378-8350 |
| | Paula Braudway, Safety Coordinator | (530) 378-8350 |
| Authorized Person to Sign and Submit Reports | Shane Young, Division Manager | (530) 378-8350 |
| Mailing Address | P.O. Box 10939, Anderson, CA 96007 | |
| Billing Address | P.O. Box 10939, Anderson, CA 96007 | |
| Type of Facility | SIC Code 2421 – Sawmills & Planing Mills | |
| | SIC Code 4911 – Electrical Generation | |
| Major or Minor Facility | Minor | |
| Threat to Water Quality | 2 | |
| Complexity | A | |
| Pretreatment Program | Not Applicable | |
| Reclamation Requirements | Not Applicable | |
| Facility Permitted Flow | Not Applicable | |
| Facility Design Flow | Not Applicable | |
| Watershed | Redding Hydrologic Unit (508.00), Enterprise Flat Hydrologic Area (508.10) | |
| Receiving Water | Sacramento River | |
| Receiving Water Type | Inland Surface Water | |

- A.** Sierra Pacific Industries, Inc., (hereinafter Discharger) is the owner and operator of Sierra Pacific Industries, Inc., Anderson Division Sawmill and Cogeneration Facility (hereinafter Facility), a 150 million board-foot sawmill complex in conjunction with a wood burning boiler for generation of electricity and steam for kiln heating, in the City of Anderson, Shasta County (Assessor's Parcel Nos. 050-100-15, 050-110-23, and 050-110-25), in Section 9, T30N, R4W, MDB&M, as shown on Attachment B.

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 a variable (based on rainfall) quantity of industrial storm water from the southern portion of the Facility to the Sacramento River, a water of the United States, or to a network of onsite ponds, along with a variable quantity of industrial storm water from the northern portion of the Facility and process water to a network of onsite ponds. The Facility is currently regulated by Waste Discharge Requirements (WDRs) Order No. R5-2004-0100 and National Pollutant Discharge Elimination System (NPDES) permit No. CA0082066, which was adopted on 9 July 2004 and expired on 1 July 2009. The terms and conditions of the current WDRs have been automatically continued and remain in effect until new WDRs and NPDES permit are adopted.
- C.** The Discharger filed a Report of Waste Discharge (ROWD) and submitted an application for renewal of its WDRs and NPDES permit on 10 November 2008. Central Valley Water Board staff determined the ROWD was complete on 21 November 2008. During preparation of the tentative permit renewal, staff requested additional information from the Discharger. The Discharger provided the additional information. A site visit was conducted on 9 February 2010, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Facility consists of a sawmill, planer mill, millwork, drying kilns, wood fired cogeneration boiler for generation of electrical power and steam for kiln heating, paved log unloading and scaling yard, rough cut lumber storage area, bark processing and storage area, chip loading area, log deck, pole log deck, fabrication shop, truck shop, paved finish lumber storage areas and separate pole handling facilities which include a scaling yard and log deck.

The property is in the Redding Hydrologic Area (No. 508.10), as depicted on interagency hydrologic maps prepared by the Department of Water Resources (DWR) in August 1986. The mean annual rainfall is approximately 38 inches and the 10-year 24-hour storm is 4.6 inches. The pan evaporation rate is approximately 60 inches per year, based on information obtained from DWR Bulletin 73-79 (November 1979).

The Discharger has submitted a storage statement and fee to the State Water Resources Control Board and obtained coverage under the Aboveground Petroleum Storage Act. A Spill Prevention Control and Countermeasure (SPCC) Plan dated January 2008, was

submitted as required by the Act, and identifies the petroleum product, quantity, storage location and containment. Products stored include diesel (20,000 gallons), gasoline (10,000 gallons), motor oil (900 gallons), hydraulic oil (450 gallons), and waste oil (1,072 gallons).

Sawmill Operations

Sawmill operation at the facility is as follows: Raw logs are delivered to the log yard where they are scaled or weighed and sent to the log deck. The logs are de-barked and delivered to the sawmill where they are rough sawn into boards. Boards are kiln dried and planed. Lumber from the planer mill is graded, packaged for sale and taken to the shipping yard. From the shipping yard packaged lumber can be placed on either rail cars, or trucks for final delivery to customers. In addition to lumber the facility produces untreated power poles. Poles are weighed, delivered to the pole yard for scaling and placed on the pole log deck. Poles are then peeled, graded and delivered via rail or trucks to customers. No chemical treatment of the poles takes place on site. Sawdust and chips are stored to the northwest of the boiler. Pine bark is used as fuel and fir bark is used for landscape mulch.

A Sapstain Control System was installed at the east end of the planer building prior 2004. This is a closed loop spray system used to prevent stain, mold, and decay of freshly cut lumber. Lumber is sprayed with a mixture containing a "wood preservative", "lumber brightener", and a mildew control agent. These materials are proprietary formulations of Kop-Coat Inc., and do not contain pentachlorophenol or other persistent chlorinated materials. Any excess material, which drips from the lumber, is collected in a catch basin and recycled. Material Safety Data Sheets (MSDS) for all materials used in the process are held by the Discharger.

Process wastewater from the sawmill operation includes the recycle water from log deck sprinkling during dry weather, and the first flush storm water from the log deck area. Process wastewater and storm water runoff generated from the sawmill portion of the facility are contained in a network of onsite ponds and are not discharge to surface waters.

Industrial storm water runoff from the southern portion of the Facility is pumped to the network of ponds. If the ponds are full, this industrial storm water is discharged to the Sacramento River through discharge point D-002. This storm water originates from the roof drainage from the planer mill, stacker, cooling shed, and drying kilns area.

Industrial storm water and process water discharge to the Sacramento River have also previously been made at discharge points D-001 and D-003. These two discharge points have been sealed. No process water is discharge to the Sacramento River.

Domestic wastewater is discharged to five septic tank leachfield systems as shown on Attachment C.

Cogeneration Operations

The Discharger operates a 4-megawatt (MW) cogeneration boiler for generation of electrical power and steam for kiln heating. Steam is supplied by a wood fired/water tube boiler with a capacity of 80,000 lbs of steam per hour to the drying kilns. Hog fuel and

chips from the sawmill portion of the Facility are used as a source fuel for the cogeneration plant.

Wastewater generated by the cogeneration operation includes boiler blowdown and cooling tower blowdown. These wastewaters contain additives to prevent scaling, and reject water from the reverse osmosis equipment. Chemicals used in the operation of the boiler include sodium hydroxide, water soluble polymer, potassium hydroxide, sodium bisulfite, diethyl amino ethanol, cyclohexyl amine, morpholine, and sodium hypochlorite. This wastewater is discharged to the Large Fire Pond at internal Discharge Point INT-001.

Water for the Facility is supplied from two on-site wells. Well No. 1 was drilled in 1948 and was completed at 225 feet below ground surface (bgs). Well No. 2a was completed at 340 feet bgs and was drilled in 1997. Currently, Well No. 2a delivers about 400 gallons per minute (gpm) to both the existing cogeneration plant and sawmill. The Discharger also has a riparian water right for Sacramento River water.

Ponds

The Facility discharges industrial stormwater and process water to a network of onsite ponds. The onsite ponds consist of a 3.8-acre Large Fire Pond, a 0.53-acre Small Fire Pond, a 0.88-acre Log Deck Recycle Pond, a 9.90-acre Retention Pond, and the S.P. Ditch.

Fire Ponds - The 3.81-acre Large Fire Pond receives boiler feed water treatment system effluent from the reverse osmosis system, runoff from the chip loading area and pole log deck, ash quench water, boiler blowdown, cooling tower blowdown, and runoff from adjacent areas. The Large Fire Pond is hydraulically connected to the 0.53-acre Small Fire Pond, which discharges to the S.P. Ditch, formerly called the "Old Champion Ditch". This discharge was designated as SW-1 in a previous permit. Water from the Large Fire Pond can also be pumped to the Small Fire Pond which can be pumped to the S.P. Ditch.

S.P. Ditch - The S.P. Ditch receives overflow from the Smaller Fire Pond, a portion of the recycled water from log deck sprinkling (approximately 15 %), and underdrain storm water discharge from two other off site industrial facilities, Siskiyou Forest Products and former Wheelabrator Hudson. Excess water in the S.P. Ditch is diverted north into a 9.9-acre Retention Pond through a 24-inch sub grade steel culvert, which passes under the ACID Canal. The S.P. Ditch continues past the point of diversion to the Retention Pond, and can flow into the Log Deck Recycle Pond. Under normal rainfall conditions, the entire flow in the S.P. Ditch discharges to the Retention Pond.

Log Deck Recycle Pond (LDRP) - Approximately 85% of the water sprinkled on logs is routed back to the 0.88-acre LDRP. When freeboard in the LDRP is limited its contents can be pumped to the large Retention Pond. Water from the Fire Pond is also used for dust control.

Retention Pond - The 9.90-acre Retention Pond receives all the excess process water and storm water runoff discharged to the S.P. Ditch as well as water pumped from the Log Deck Recycle Pond. There is no discharge from the Retention Pond and, as a result of its capacity and percolation, all process and storm water has been retained and no discharges to the Sacramento River have occurred from this part of the pond system for over 20 years.

A. Description of Wastewater Treatment or Controls

The system of ponds is used to settle and control pollutants from the storm water and process water.

B. Discharge Points and Receiving Waters

1. During precipitation periods, if capacity is reached in the retention pond, industrial storm water runoff from the southern portion of the Facility (planer mill, stacker, cooling shed, and drying kilns) can be discharged to the Sacramento River through Discharge Point D-002. Industrial storm water and process water discharges to the Sacramento River have previously been made at discharge point D-001 and D-003, however these two discharge points have been sealed, and discharge from them is not allowed by this permit.
2. Discharge Point D-002 and the receiving water are located within the Redding Hydrologic Unit, Enterprise Flat Hydrologic Area (508.10) of the Redding Hydrologic Unit as defined by the interagency hydrologic map for the Sacramento Hydrologic Basin prepared by the Department of Water Resources (1986). Attachment B provides topographic maps of the Facility and surrounding area.

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

Effluent Limitations and Discharge Specifications contained in the existing WDRs for discharges from Discharge Point D-002 (Monitoring Location EFF-002) and representative monitoring data from the term of the existing WDRs are as follows:

Table F-2. Existing Effluent Limitations and Monitoring Data, Discharge Point D-002.

| Parameter | Units | Effluent Limitations | | Interim Effluent Limitations | | Monitoring Data D-002 (1/2006 – 2/2009) | |
|--------------------------------|----------|--|---------------|------------------------------|---------------|---|---------------------|
| | | Average Monthly | Maximum Daily | Average Monthly | Maximum Daily | Average Monthly | Maximum Daily |
| Settleable Solids | mL/L | 0.1 | 0.2 | | | 0.2 | 0.7 |
| Total Suspended Solids | mg/L | | | | | | 125 |
| Turbidity | NTU | | | | | 53 | 234 |
| Electrical Conductivity @ 25°C | umhos/cm | | | | | 57 | 109 |
| Cadmium, total recoverable | ug/L | 0.138 | 0.277 | | 9.64 | 0.10 | 0.19 |
| Copper, total recoverable | ug/L | 10.8 | 21.6 | | 115 | 6.31 | 11.2 |
| Lead, total recoverable | ug/L | 4.93 | 9.89 | 11.1 | 34.5 | 2.12 | 4.30 |
| Zinc, total recoverable | ug/L | 59.3 | 120.2 | | 840 | 184 | 349 |
| Bis-2-Ethylhexylphthalate | ug/L | | | | 15.6 | ND (<0.7) | ND (<0.7) |
| Hardness | mg/L | | | | | 24 | 45 |
| pH | pH units | pH shall remain within the range of 6.0 and 9.0 at all times | | | | 7.10 ⁽¹⁾ | 7.53 ⁽¹⁾ |

(1) Instantaneous Maximum and Instantaneous Minimum.

D. Compliance Summary

Based on the monitoring data submitted by the Discharger from January 2006 through February 2010, the Discharger appears to have been in compliance with the permit with the exception of four settleable solids violations (January 2006, October 2006, October 2007, February 2009). The settleable solids effluent violations were defined as serious effluent violations. No other effluent or receiving water violations set by existing WDRs have been documented since February 2009. Due in part to these compliance problems and the continued elevated zinc problems, the Discharger has completed facility modifications to eliminate discharge to the Sacramento River as described in the following section.

E. Planned Changes

1. Full Containment of Process Water and Storm Water.

The Discharger has recently completed Facility modifications to eliminate discharge to the Sacramento River. Specifically, the Discharger has modified its onsite wastewater management in an effort to eliminate the need to discharge industrial storm water to the river for up to 100-year annual precipitation. Pump stations and piping were added, and drainage was modified to enable the industrial storm water from the southern portion of the Facility to be directed into storage ponds rather than the Sacramento River.

If the combined storage capacity of the ponds is projected to be exceeded due to a very high rainfall winter (e.g., annual rainfall greater than 100-year return frequency), then the Discharger would discharge subsequent industrial storm water from the southern portion of the Facility to the river through Discharge Point D-002. Cogen process water, log deck recycle water, log deck storm water, and industrial storm water from the northern portion of the Facility would continue to be stored in the ponds, and would not be discharged to the river.

2. Addition of New Cogeneration Power Plant.

The Discharger is in the process of adding a new cogeneration power facility, including a new fuel shed, boiler building, turbine building, cooling tower, electrostatic precipitator, ash silo and electric substation at the Facility. The boiler would burn biomass fuel to produce steam to dry lumber in existing kilns and to power a steam turbine. The steam turbine would drive a generator that would produce up to 31 MW of electricity. The new cooling tower would produce an additional 60 to 110 gallons per minute (gpm) of cooling water blowdown discharged to the onsite ponds (a maximum of 156 acre-feet per year). This is an increase between 233 percent and 275 percent over the current cogeneration process discharge. Boiler blowdown will increase between 0.8 and 3.5 gpm. This increased process water discharge is permitted by this Order, subject to Discharge Prohibition III.I.

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. This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authority

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. Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177. The surface water discharge to the Sacramento River is exempt from CEQA pursuant to Water Code section 13389. The existing land discharge to ponds is exempt from CEQA pursuant to 14 CCR section 15301. A Notice of Determination for a Negative Declaration covering the existing facility was filed with Shasta County in February 1988. An environmental impact report (EIR) was prepared and circulated for the proposed new cogeneration facility. This permit requires that any identified water quality mitigation measures are implemented, effective, and maintained. This permit contains a reopener provision to establish requirements for specific mitigation measures as appropriate. This permit prohibits discharge from the proposed new cogeneration facility until the CEQA process has been completed and any required mitigations are in place.

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 Findings 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)*** 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.

The Basin Plan at page II-2.00 states that the “...*beneficial uses of any specifically identified water body generally apply to its tributary streams.*” In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Sacramento River downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial power water supply, water contact recreation including canoeing and rafting, other non-contact water recreation, warm freshwater aquatic habitat, cold

freshwater aquatic habitat, warm spawning habitat, cold spawning habitat, and wildlife habitat.

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 November 28, 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.

b. Thermal Plan. Not Applicable.

c. Bay-Delta Plan. Not Applicable.

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.I 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 section 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.
6. **Anti-Backsliding Requirements.** Sections 303 (d)(4) and 402(o)(2) of the CWA and federal regulations at title 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a

reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).

7. Emergency Planning and Community Right to Know Act. Not Applicable.

8. Storm Water Requirements.

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 industrial facilities. This site-specific, individual Order implements the requirements of the Industrial Storm Water Program.

The SWRCB adopted Order No. 97-03-DWQ (General Permit No. CAS000001), on 17 April 1997, specifying waste discharge requirements for discharge of storm water associated with industrial activities, excluding construction activities, that requires submittal of a Notice of Intent, preparation of a Storm Water Pollution Prevention Plan, site map, and monitoring program by industries to be covered under the permit. The General Permit, Table D, requires timber product facilities to sample for additional constituents. Specifically, the category "General Sawmills and Planing Mills" and "Log Storage and Handling" require chemical oxygen demand (COD), total suspended solids (TSS), and zinc to be monitored. This individual permit and the provisions and monitoring it contains concerning storm water relieve the Discharger from seeking coverage under the General Industrial Storm Water Permit No. CAS000001, or revisions thereto.

9. Endangered Species Act.

This Order is consistent with the Endangered Species Act as specified in the Findings 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 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "*...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 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 2006 listing for the Sacramento River from Keswick Dam to Cottonwood Creek includes unknown toxicity.

2. **Total Maximum Daily Loads.** USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. The 2006 listing for unknown toxicity has a proposed TMDL completion date of 2019. This Order contains a reopener provision to modify permit requirements, as necessary, to implement any changes due to the TMDL.

E. Other Plans, Polices and Regulations

1. The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this Order are consistent with the Policy.
2. **Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27)**

The storage ponds used by the Discharger contain comingled industrial storm water and process water. The ponds are not lined, and have the potential to impact underlying groundwater quality. They contain boiler and cooling tower wastes, and wood wastes. Furthermore, bottom ash and fly ash are stored at the facility, and land applied as a soil amendment on adjoining property.

On multiple events in 2003, 2008, 2010, and 2011 samples were collected from the cogeneration discharge and the network of ponds and analyzed for general chemistry, EC, semi-volatile organic compounds, Tannins and Lignins, volatile organic compounds, metals, pesticides, PCBs, Dioxin, and asbestos. The sample results represent worst-case concentrations (no dilution in groundwater) that could affect groundwater quality. With the exception of pH, none of the sample results exceeded applicable water quality objectives. The maximum measured pH in the ponds was 9.57, above the 6.5 to 8.5 Basin Plan water quality objective for groundwater. However, within approximately 100 feet from this location, the pH was within the allowable range. Therefore, resulting concentrations in groundwater will also be within range. Central Valley Water Board staff had particular concerns regarding salinity, as measured by electrical conductivity, but direct measurements indicated a maximum concentration of 321 umhos/cm, well below the most stringent water quality objective.

The sample results, and the calculations and analysis by the Discharge demonstrate that groundwater impacts should be insignificant, and should not result in the exceedance of any water quality objectives. The analysis was conservative, and used worst-case assumptions. In order to confirm that the Discharger's Title 27 Exemption Analysis is correct, this Order requires groundwater monitoring and an update to the Title 27 Exemption Analysis. Once the results of groundwater monitoring and the Title 27 Exemption Analysis Update are submitted, this Order may be reopened to add or modify findings, limits, or other conditions as appropriate.

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 Clean Water Act (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 discharges 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) EPA’s published water quality criteria, (2) a proposed state criterion (*i.e.*, water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the 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 taste 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 or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

A. Discharge Prohibitions

1. Discharge of wastewater at a location or in a manner different from that described in the Findings, is prohibited.
2. The by-pass or overflow of wastewater to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the CWC.
4. The direct discharge of recycled water from log sprinkling and discharge of recycle pond water, and boiler blowdown water to surface waters or surface water drainage courses is prohibited.
5. The discharge of wood treatment chemicals or stain control fungicides to surface waters or to groundwater is prohibited.
6. The discharge of ash, bark, sawdust, wood, debris, or any other wastes recognized as originating from the facility to surface waters or surface water drainage courses is prohibited.
7. The discharge of hazardous or toxic substances, including storm water treatment chemicals, grinding aid, solvents or petroleum products (e.g., oil, grease, gasoline, and diesel) to surface waters or groundwater is prohibited.
8. Discharge of wastes classified as "hazardous" as defined in Section 2521(a) of Title 23, California Code of Regulations (CCR), Section 2510, et seq., or "designated", as defined in Section 13173 of the California Water Code is prohibited.

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 Timber Products Processing Point Source Category in 40 CFR.

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. The Discharger operates a 4-MW wood-burning power plant with plans to build a 31-MW plant. 40 CFR 423 specifies effluent limitations for Steam Electric Power Generation Point Source Category where fossil fuel is used as the primary fuel source. The Discharger uses wood as the primary fuel source and fossil fuel is only used secondarily. 40 CFR 423.10 specifically describes fossil-type fuel as coal, oil, or gas. Therefore 40 CFR 423 is not applicable to the Facility discharge.
- b. The Discharger operates a “barking” operation, a “wet deck” log storage operation, and a “sawmills and planning mills” operation. Therefore, effluent

limitations established in Timber Products Processing Point Source Category (40 CFR Part 429) are applicable to the discharge. Specifically, Subpart A (Barking Subcategory), Subpart I (Wet Storage Subcategory), and Subpart K (Sawmills and Planing Mills Subcategory) apply.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). The following effluent limitations apply to Discharge Point D-002:

- i. Barking - There shall be no discharge of process wastewater into navigable waters.
- ii. Wet Storage - There shall be no debris discharged and the pH shall be within the range of 6.0 to 9.0 at all times. Where, “debris” means woody material such as bark, twigs, branches, heartwood or sapwood that will not pass through a 2.54 cm (1.0 in) diameter round opening and is present in the discharge from a wet storage facility.
- iii. Sawmills and Planing Mills - There shall be no discharge of process wastewater pollutants into navigable waters.

**Summary of Technology-based Effluent Limitations
 Discharge Point No. D-002**

Table F-3. Summary of Technology-based Effluent Limitations.

| Parameter | Units | Effluent Limitations | | | | |
|-----------|----------|----------------------|----------------|---------------|-----------------------|-----------------------|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | pH units | | | | 6.0 ¹ | 9.0 ¹ |

(1) Overflow associated with a 10-year, 24-hour rainfall event is not subject to the pH limitation.

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) require that permits include effluent limitations that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedence 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 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.** Beneficial uses applicable to the Sacramento River and its tributaries downstream of the discharge are as follows:

Table F-4. Basin Plan Beneficial Uses

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|-----------------|------------------------|---|
| D-002 | Sacramento River | <u>Existing:</u> Municipal and domestic water supply (MUN); Agricultural supply, including stock watering (AGR); Industry Service Supply (IND); Power Generation (POW); Water Contact Recreation (REC-1); Non-contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); Warm and Cold Migration of Aquatic Organisms (MIGR); Warm and Cold Spawning, Reproduction, and/or early Development (SPWN); Wildlife habitat (WILD); Navigation (NAV). |
| Unlined Ponds | Underlying Groundwater | <u>Potential:</u> Municipal and domestic water supply (MUN). Industrial process supply (PRO); Industrial service supply (IND); and Industrial power supply (POW) |

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 multiple sampling events from January 2006 through February 2009, which includes effluent and ambient background data submitted in Self-monitoring reports and the Report of Waste Discharge (ROWD), and upstream receiving water data from other data sources as described below. This cumulative body of representative data includes indicator parameters, general chemistry, metals, volatile organic compounds, semi-volatile organic compounds, pesticides, PCBs, Dioxin, and acute and chronic whole effluent toxicity.

The Discharger’s previous permit allowed the discharger to use monitoring data collected by the City of Redding upstream of the discharge in lieu of collecting their own upstream sample data. However, the Discharger began collecting upstream receiving water samples in January 2008 anyway. Upstream receiving water samples were limited to pH, turbidity, hardness, cadmium, copper, lead, zinc, and bis-2-ethylhexylphthalate.

The Discharger’s data was supplemented using the City of Redding upstream data from the Clear Creek Wastewater Treatment Plant and includes arsenic, total chromium, mercury, nickel, selenium, and silver. Data was further supplemented using the City of Redding upstream data from the Sacramento River near Caldwell Park (SRCP) in Redding and includes data for antimony, beryllium, thallium, and cyanide.

The Discharger did not collect background data for CTR organic constituents.

The City of Redding CTR organics data from SRCP was used as background for all CTR organic constituents.

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 SIP¹, the CTR², 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. In some cases, the hardness of effluent discharges changes the hardness of the ambient receiving water. 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 ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.

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

² The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO₃), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

Reasonable Potential Analysis (RPA). 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 Maximum Effluent Concentration (MEC) and Maximum Ambient 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.

- For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Order WQO 2008-0008, 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 ii, below.
- 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.

Calculation of Water Quality-Based Effluent Limitations. The remaining discussion in this section relates to the development of water quality-based effluent limits 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 Study¹ 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

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

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 water quality-based effluent limitations. 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 CaCO₃)

WER = water-effect ratio

m, b = metal- and criterion-specific constants

If the Basin Plan maximum concentrations in Table III-1 are more stringent, then the Basin Plan objective is used in lieu of the CTR acute criteria.

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:

$$\text{ECA} = \text{C} \quad (\text{when } \text{C} \leq \text{B})^1 \quad (\text{Equation 2})$$

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, 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”.

¹ The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e. C ≤ B)

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 effluent hardness ranged from 10 mg/L to 45 mg/L (as CaCO₃), based on 17 samples from January 2006 to February 2009. The upstream receiving water hardness in the Sacramento River varied from 35 mg/L to 51 mg/L (as CaCO₃), based on 14 samples from April 2006 to February 2009. Using a hardness of 10 mg/L (as CaCO₃) 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 examples using copper shown in Table F-5, below. This example assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 35 mg/L as CaCO₃)
- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity).

Using the 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.

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

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 Tables F-5 using an effluent hardness of 10 mg/L (as CaCO₃) to calculate the ECA for Concave Down Metals 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 the lowest upstream receiving water hardness (35 mg/L) would also be protective, but would result in less stringent effluent limits. Therefore, in this Order the ECA for all Concave Down Metals has been calculated using Equation 1 with an effluent hardness of 10 mg/L (as CaCO₃).

Table F-5. Copper ECA Evaluation

| | | | |
|--|---|---|---------------------------------------|
| Minimum Observed Effluent Hardness | | 10 mg/L (as CaCO₃) | |
| Minimum Observed Upstream Receiving Water Hardness | | 35 mg/L (as CaCO₃) | |
| Maximum Assumed Upstream Receiving Water Copper Concentration | | 3.8 ug/L ¹ | |
| Copper ECA_{chronic} ² | | 1.3 ug/L | |
| Effluent Fraction | Mixed Downstream Ambient Concentration | | |
| | Hardness ³ (mg/L) (as CaCO₃) | CTR Criteria ⁴ (ug/L) | Copper ⁵ (ug/L) |
| 1% | 34.8 | 3.8 | 3.8 |
| 5% | 33.8 | 3.7 | 3.7 |
| 15% | 31.3 | 3.4 | 3.4 |
| 25% | 28.8 | 3.2 | 3.2 |
| 50% | 22.5 | 2.6 | 2.6 |
| 75% | 16.3 | 2.0 | 1.9 |
| 100% | 10.0 | 1.3 | 1.3 |

- ¹. Maximum assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of **35 mg/L (as CaCO₃)**.
- ². ECA calculated using Equation 1 for chronic criterion at a hardness of **10 mg/L (as CaCO₃)**.
- 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.

ECA for Concave Up Metals – 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 4, 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 4 below is defined by the term H_{rw} .

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

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 ($H_{rw} < H_e$)

-or-

maximum observed upstream receiving water hardness when the minimum effluent hardness is always less than observed upstream receiving water hardness ($H_{rw} > H_e$)¹

A similar example as was done for the Concave Down Metals is shown for acute cadmium, a Concave Up Metal in Tables F-6, below. As previously mentioned, the minimum effluent hardness is 10 mg/L (as CaCO_3), while the upstream receiving water hardness ranged from 35 mg/L to 51 mg/L (as CaCO_3). In this case, minimum effluent hardness is always less than the range of observed upstream receiving water hardness. Thus, the ECA was calculated (Equation 4) based on the maximum observed upstream receiving water hardness, no receiving water assimilative capacity for cadmium (i.e., ambient background cadmium concentration is at the water quality criteria/objective) and the minimum effluent hardness.

¹ When the minimum effluent hardness falls within the range of observed receiving water hardness concentrations, Equation 4 is used to calculate two ECAs, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness. The minimum of the two calculated ECAs represents the ECA that ensures any mixture of effluent and receiving water is in compliance with the CTR criteria.

Table F-6. Cadmium ECA Evaluation

| | | | |
|---|---|---|--|
| Minimum Observed Effluent Hardness | | 10 mg/L (as CaCO₃) | |
| Maximum Observed Upstream Receiving Water Hardness | | 51 mg/L (as CaCO₃) | |
| Maximum Assumed Upstream Receiving Water Cadmium Concentration | | 1.3 ug/L ¹ | |
| Acute Cadmium ECA_{basin plan} ² | | 0.021 ug/L | |
| Effluent Fraction | Mixed Downstream Ambient Concentration | | |
| | Hardness ³ (mg/L) (as CaCO₃) | CTR Criteria ⁴ (ug/L) | Acute Cadmium ⁵ (ug/L) |
| 1% | 50.6 | 0.3 | 0.3 |
| 5% | 49.0 | 0.3 | 0.3 |
| 15% | 44.9 | 0.3 | 0.3 |
| 25% | 40.8 | 0.2 | 0.2 |
| 50% | 30.5 | 0.2 | 0.2 |
| 75% | 20.3 | 0.1 | 0.1 |
| 100% | 10.0 | 0.0 | 0.0 |

- ¹ Maximum assumed upstream receiving water cadmium concentration calculated using Equation 3 for Basin Plan Max criterion at a hardness of **51 mg/L (as CaCO₃)**.
- ² ECA calculated using Equation 3 for Basin Plan Max 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 acute criteria/objective calculated using Equation 1 at the mixed hardness.
- ⁵ Mixed downstream ambient cadmium concentration is the mixture of the receiving water and effluent concentrations at the applicable effluent fraction.

However, the ECA calculated for cadmium using Equations 1 and 2 and the lowest observed hardness (effluent or receiving water) of 10 mg/L (as CaCO₃) results in an ECA of 0.045. The Discharger is not required to improve the water quality in the Sacramento River. In this case, the minimum effluent hardness is always less than the observed upstream receiving water hardness. Therefore, end of pipe effluent limitations have been determined using ECAs calculated using Equation 1 with an effluent hardness of 10 mg/L (as CaCO₃), see Table F-7 below.

Table F-7. Cadmium ECA Evaluation

| | | | |
|---|--------------------------------------|----------------|-------------------|
| Minimum Observed Effluent Hardness | 10 mg/L (as CaCO₃) | | |
| | Acute | Chronic | Basin Plan |
| Cadmium ECA total recoverable | 0.33 | 0.40 | 0.05 |

Lead is also a Concave Up Metal. Using Equation 4 to calculate an ECA results in a negative number. There is no assimilative capacity in the receiving water based on the maximum background concentration of 1.0 ug/L and no mixture of effluent and receiving water will result in the Sacramento River being in compliance. In addition, the Discharger is not required to improve the water quality in the Sacramento River. In this case, the minimum effluent hardness is always less than the observed upstream receiving water

hardness. Therefore, end of pipe effluent limitations have been determined using ECAs calculated using Equations 1 and 2 with a minimum effluent hardness of 10 mg/L (as CaCO₃), see Table F-8 below.

Table F-8. Lead ECA Evaluation

| Minimum Observed Effluent Hardness | 10 mg/L (as CaCO ₃) | |
|------------------------------------|---------------------------------|---------|
| | Acute | Chronic |
| Lead ECA total recoverable | 4.35 | 0.17 |

- 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. Since the Discharger has not provided translators specific to the receiving water, this Order used CFs from the SIP summarized in Table F-9 below:

Table F-9. Translators at 10 mg/L hardness as CaCO₃.

| Parameter | Conversion Factor Freshwater Acute Criteria | Conversion Factors Freshwater Chronic Criteria |
|----------------------|--|---|
| Arsenic ¹ | 1.00 | 1.00 |
| Cadmium | 1.040 | 1.005 |
| Chromium (III) | 0.316 | 0.860 |
| Copper | 0.960 | 0.960 |
| Lead | 1.127 | 1.127 |
| Nickel | 0.998 | 0.997 |
| Thallium | | |
| Zinc | 0.978 | 0.986 |

1) Bioaccumulative compound and inappropriate to adjust to percent dissolved.

iii. **Assimilative Capacity/Mixing Zone.**

USEPA established numeric criteria for priority toxic pollutants in the California Toxics Rule (CTR). The State Water Resources Control Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) to implement the CTR. The Regional Water Board’s Basin Plan allows mixing zones provided the Discharger has demonstrated that the mixing zone will not adversely impact beneficial uses. The Basin Plan further requires that in determining the size of a mixing zone, the Regional Water Board will consider the applicable procedures in USEPA’s Water Quality Standards Handbook and the Technical Support Document for Water Quality Based Toxics Control (TSD). It is the Regional Water Board’s discretion whether to allow a mixing zone. The SIP, in part, states that mixing zones shall not:

- Compromise the integrity of the entire water body.
- Cause acutely toxic conditions to aquatic life passing through the mixing zone.

- Restrict passage of aquatic life.
- Adversely impact biologically sensitive or critical habitats, including but not limited to, habitat of species listed under Federal or State endangered species laws.
- Dominate the receiving water body.
- Overlap a mixing zone from a different outfall.

USEPA's Water Quality Standards Handbook (WQSH) states that States may, at their discretion, allow mixing zones. The WQSH recommends that mixing zones be defined on a case-by-case basis after it has been determined that the assimilative capacity of the receiving stream can safely accommodate the discharge. This assessment should take into consideration the physical, chemical, and biological characteristics of the discharge and the receiving stream; the life history of and behavior of organisms in the receiving stream; and the desired uses of the waters. Mixing zones should not be allowed where they may endanger critical areas (e.g., drinking water supplies, recreational areas, breeding grounds and areas with sensitive biota). USEPA's TSD states, in part in Section 4.3.1, that mixing zones should not be permitted where they may endanger critical areas.

The Basin Plan, the SIP, and USEPA's TSD state that allowance of a mixing zone is discretionary on the part of the Regional Board. Based on the available information, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero dilution/assimilative capacity within the receiving water is that the discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water. This permit contains a reopener to establish dilution credits and mixing zone if the Discharger conducts the necessary studies and makes any necessary physical improvements, and the Regional Water Board decides to grant dilution credits and mixing zones.

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 control². 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.

² See Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).

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. Regional Water Board staff identified the need for this information, but sampling was not possible because no discharge to the Sacramento River has occurred since February 2009. 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. The Discharger has not collected samples for aluminum, iron, and manganese analysis. Therefore, the data for aluminum, iron, and manganese has been considered as discussed below, but an RP determination was not made due to the limited information.

i. **Aluminum.**

(a) **WQO.** USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum. The Recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 ug/L and 750 mg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The most stringent of these criteria, the chronic criterion of 87 ug/L, is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as CaCO₃) conditions not commonly observed in valley floor waters like the Sacramento River. In its 1999 National Recommended Water Quality Criteria – Correction, USEPA suggests the use of a water-effect ratio (WER) may be appropriate for implementation of its recommended chronic criterion for aluminum. One of the reasons that USEPA presents in footnote L in the 1999 Correction is that “EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg aluminum/L, when either total recoverable or dissolved is measured.” However, the Discharger has not provided any evidence regarding the site-specific toxicity of aluminum, therefore 87 ug/L was used as the most stringent water quality criterion. If the Discharger provides evidence, such as a WER study, that a different concentration should be used, then this permit may be reopened, and adjusted accordingly.

The next most stringent objective is the Department of Public Health secondary Maximum Contaminant Level of 200 ug/L, implemented as an annual average, for protection of human health due to long-term exposure.

(b) **RPA Results.** No data is available for aluminum in the effluent. Aluminum was samples 17 times between January 2006 and February 2009 in the upstream receiving water. The maximum observed upstream receiving water concentration was 463 ug/L. Therefore, this Order requires monitoring sufficient to provide data for a Reasonable Potential

Analysis. This permit also contains a re-opener provision for aluminum to establish an effluent limit if appropriate.

ii. Iron.

- (a) **WQO.** USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for iron. The Recommended 4-day average (chronic) is 1,000 ug/L.

The Department of Public Health establishes a secondary Maximum Contaminant Level of 300 ug/L, implemented as an annual average.

- (b) **RPA Results.** No data is available for iron in the effluent. Iron was sampled 7 times between January 2006 and February 2009 in the upstream receiving water. The maximum observed upstream receiving water concentration was 262 ug/L. Therefore, this Order requires monitoring sufficient to provide data for a Reasonable Potential Analysis. This permit also contains a re-opener provision for iron to establish an effluent limit if appropriate.

iii. Manganese

- (a) **WQO.** USEPA has not developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of human health and welfare protection for manganese.

The Department of Public Health established a secondary Maximum Contaminant Level of 50 ug/L, implemented as an annual average.

RPA Results. No data is available for manganese in the effluent. Manganese was sampled once between January 2006 and February 2009 in the upstream receiving water. The maximum observed upstream receiving water concentration was 8.5 ug/L. Therefore, this Order requires monitoring sufficient to provide data for a Reasonable Potential Analysis. This permit also contains a re-opener provision for manganese to establish an effluent limit if appropriate.

iv. Salinity.

- (a) **WQO.** 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.

Table F-10. Salinity Water Quality Criteria/Objectives

| Parameter | Agricultural WQ Goal ¹ | Secondary MCL ³ | Effluent D-002 2/2006 – 2/2009 | |
|-----------------|-----------------------------------|----------------------------|-----------------------------------|---------|
| | | | Average | Maximum |
| EC (µmhos/cm) | Varies ² | 900, 1600, 2200 | 57 | 109 |
| TDS (mg/L) | Varies | 500, 1000, 1500 | | |
| Sulfate (mg/L) | Varies | 250, 500, 600 | | |
| Chloride (mg/L) | Varies | 250, 500, 600 | | |

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 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.

³ The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

(1) Chloride. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L 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 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

(2) Electrical Conductivity. 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.

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

(4) Total Dissolved Solids. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L 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). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield (i.e., a restriction on use of water, for salt-sensitive crops). Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

(b) RPA Results (Salinity).

(1) Chloride. Chloride concentrations in the effluent and receiving water are not available.

(2) Electrical Conductivity. A review of the Discharger's monitoring reports indicates that the discharger has analyzed for EC 16 times between January 2006 and February 2009. The EC from D-002 effluent ranged from 23 umhos/cm to 109 umhos, with an average of 57 umhos. Electrical Conductivity does not demonstrate reasonable potential.

(3) Sulfate. Sulfate concentrations in the effluent and receiving water are not available.

(4) Total Dissolved Solids. Total Dissolved Solids concentrations in the effluent and receiving water are not available.

(c) WQBELs. Effluent limitations based on the MCL or the Basin Plan would likely require construction and operation of a reverse osmosis treatment plant. The State Water Board, in Water Quality Order 2005-005 (for the City of Manteca), states, "*...the State Board takes official notice [pursuant to Title 23 of California Code of Regulations, Section 648.2] of the fact that operation of a large-scale reverse osmosis treatment plant would result in production of highly saline brine for which an acceptable method of disposal would have to be developed. Consequently, any decision that would require use of reverse osmosis to treat the City's municipal wastewater effluent on a large scale should involve thorough consideration of the expected environmental effects.*" The State Water

Board states in that Order, *“Although the ultimate solution to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta.”* The State Water Board goes on to say, *“Construction and operation of reverse osmosis facilities to treat discharges...prior to implementation of other measures to reduce the salt load in the southern Delta, would not be a reasonable approach.”*

The Regional Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. In a statement issued at the 16 March 2006, Regional Water Board meeting, Board Member Dr. Karl Longley recommended that the Regional Water Board continue to exercise its authority to regulate discharges of salt to minimize salinity increases within the Central Valley. Dr. Longley stated, *“The process of developing new salinity control policies does not, therefore, mean that we should stop regulating salt discharges until a salinity Policy is developed. In the meantime, the Board should consider all possible interim approaches to continue controlling and regulating salts in a reasonable manner, and encourage all stakeholder groups that may be affected by the Regional Board’s policy to actively participate in policy development.”*

WQBELs are not included in this Order for chloride, electrical conductivity, sulfate, and total dissolved solids. These constituents 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 re-opened and modified by adding an appropriate effluent limitation.

- 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 re-opened and modified by adding an appropriate effluent limitation.
- d. **Constituents with Reasonable Potential.** The Regional Water Board finds that the discharge has reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for cadmium, copper, lead, nickel, pH, settleable solids, total suspended 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.

- i. **Cadmium**

- (a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for cadmium. The Basin Plan also includes a

maximum objective. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.c of this Fact Sheet, the applicable acute (1-hour average) criterion is 0.33 µg/L and the applicable chronic (4-day average) criterion is 0.40 µg/L, while the Basin Plan maximum is 0.05 µg/L as total recoverable cadmium.

(b) RPA Results. Cadmium was sampled 17 times between January 2006 and February 2009. The maximum effluent concentration (MEC) for cadmium was 0.2 µg/L (as total recoverable) while the maximum observed upstream receiving water concentration was 0.1 µg/L (as total recoverable). Therefore, cadmium in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan maximum objective for the protection of freshwater aquatic life.

(c) WQBELs. Dilution credits are not being granted for cadmium. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for cadmium of 0.02 µg/L and 0.05 µg/L, respectively, based on the Basin Plan Objective. Due to the Discharger's new ability to store water that previously discharged to the Sacramento River at D-002, it is unknown whether an infrequent discharge from D-002 consisting of late-season industrial storm water would comply with this effluent limit. If compliance is not achieved, it is the Discharger's intent to expand its storage capacity to prevent discharge from D-002 in the future, or to treat the discharge to comply.

ii. Copper

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.c of this Fact Sheet, the applicable acute (1-hour average) criterion is 1.60 µg/L and the applicable chronic (4-day average) criterion is 1.30 µg/L as total recoverable.

(b) RPA Results. Copper was sampled 17 times between January 2006 and February 2009. The maximum effluent concentration (MEC) for copper was 11.20 µg/L (as total recoverable) while the maximum observed upstream receiving water concentration was 4.7 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 chronic criterion for the protection of freshwater aquatic life.

(c) WQBELs. Dilution credits are not being granted for copper. This Order contains a final average monthly effluent limitation (AMEL) and a maximum daily effluent limitation (MDEL) for copper of 0.80 µg/L and 1.60 µg/L, respectively, based on the chronic CTR criterion for the protection of freshwater aquatic life. Due to the Discharger's new ability to store water that previously discharged to the Sacramento River at D-002,

it is unknown whether an infrequent discharge from D-002 consisting of late-season industrial storm water would comply with this effluent limit. If compliance is not achieved, it is the Discharger's intent to expand its storage capacity to prevent discharge from D-002 in the future, or to treat the discharge to comply.

iii. Lead

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.c of this Fact Sheet, the applicable acute (1-hour average) criterion is 4.35 µg/L and the applicable chronic (4-day average) criterion is 0.17 µg/L as total recoverable.

(b) RPA Results. Lead was sampled 17 times between January 2006 and February 2009. The maximum effluent concentration (MEC) for lead was 4.30 µg/L (as total recoverable) while the maximum observed upstream receiving water concentration was 1.0 µg/L (as total recoverable). Therefore, lead in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion for the protection of freshwater aquatic life.

(c) WQBELs. Dilution credits are not being granted for lead. This Order contains a final average monthly effluent limitation (AMEL) and a maximum daily effluent limitation (MDEL) for lead of 0.14 µg/L and 0.28 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life. Due to the Discharger's new ability to store water that previously discharged to the Sacramento River at D-002, it is unknown whether an infrequent discharge from D-002 consisting of late-season industrial storm water would comply with this effluent limit. If compliance is not achieved, it is the Discharger's intent to expand its storage capacity to prevent discharge from D-002 in the future, or to treat the discharge to comply.

iv. Nickel

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for nickel. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.c of this Fact Sheet, the applicable acute (1-hour average) criterion is 66.89 µg/L and the applicable chronic (4-day average) criterion is 7.44 µg/L as total recoverable.

(b) RPA Results. Nickel was sampled 3 times between January 2006 and February 2009. The maximum effluent concentration (MEC) for nickel was 8.7 µg/L (as total recoverable) while the maximum observed upstream receiving water concentration was 1.13 µg/L (as total recoverable). Therefore, nickel in the discharge has a reasonable

potential to cause or contribute to an in-stream excursion above the CTR chronic criterion for the protection of freshwater aquatic life.

(c) WQBELs. Dilution credits are not being granted for nickel. This Order contains a final average monthly effluent limitation (AMEL) and a maximum daily effluent limitation (MDEL) for nickel of 6.07 ug/L and 12.2 ug/L, respectively, based on the chronic CTR criterion for the protection of freshwater aquatic life. Due to the Discharger's new ability to store water that previously discharged to the Sacramento River at D-002, it is unknown whether an infrequent discharge from D-002 consisting of late-season industrial storm water would comply with this effluent limit. If compliance is not achieved, it is the Discharger's intent to expand its storage capacity to prevent discharge from D-002 in the future, or to treat the discharge to comply.

v. pH.

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

(b) RPA Results. The discharge has not exhibited exceedances, however, the discharge of industrial stormwater has a reasonable potential to cause or contribute to an excursion above or below the Basin Plan's numeric objectives for pH.

(c) WQBELs. Technology-based effluent limitations on pH of 6.0 to 9.0 are applicable. The Basin Plan pH objective requires the receiving water to be within 6.5 to 8.5 pH units. As no mixing zone is being granted for pH, an effluent limitation of 6.5 to 8.5 is being established. Based on the Dischargers data, these limits can be achieved.

vi. 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 has had multiple exceedances for settleable solids. The discharge of industrial stormwater has a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable material.

(c) WQBELs. This Order contains an average monthly effluent limitation and maximum daily effluent limitation for settleable solids of 0.1 mL/L and 0.2 mL/L, respectively for settleable solids. Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order. Due to the Discharger's new ability to store water that previously discharged to the Sacramento River at D-002, it is unknown whether an infrequent discharge from D-002 consisting of late-season industrial storm water would comply with this effluent limit. If compliance is not achieved, it is the Discharger's intent to expand its storage capacity to prevent discharge from D-002 in the future, or to treat the discharge to comply.

vii. Total Suspended Solids.

(a) WQO. For inland surface waters, the Basin Plan states that “[w]aters shall not contain suspended materials in concentrations that causes nuisance or adversely affects beneficial uses.”

(b) RPA Results. The discharge of sawmill process water has a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for suspended materials.

(c) WQBELs. This Order contains a maximum daily effluent limitation for total suspended solids of 50 mg/L. The total suspended solids limit in this permit is based on benchmark values established by the USEPA and is comparable with the suspended solids limits for similar facilities, and is consistent with limits in the previous Order. Due to the Discharger's new ability to store water that previously discharged to the Sacramento River at D-002, it is unknown whether an infrequent discharge from D-002 consisting of late-season industrial storm water would comply with this effluent limit. If compliance is not achieved, it is the Discharger's intent to expand its storage capacity to prevent discharge from D-002 in the future, or to treat the discharge to comply.

viii. Toxicity. See section IV.C.5 of the Fact Sheet regarding whole effluent toxicity.

ix. Zinc.

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. The Basin Plan is used to implement the Basin Plan's narrative toxicity objective for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness, as described in section IV.C.2.b of this Fact Sheet, the applicable acute (1-hour average) criterion is 17.03 ug/L and the applicable chronic (4-day average) criterion is 17.03 ug/L, as total recoverable. The applicable Basin Plan maximum concentration is 5.18 ug/L for zinc, as total recoverable.

(b) RPA Results. The maximum effluent concentration (MEC) for zinc was 349 µg/L, based on 16 samples collected between January 2006 and February 2009, while the maximum observed upstream receiving water concentration was 12.7 µg/L based on 5 samples collected between January 2008 and February 2009. Therefore, zinc in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objective and the CTR criteria for the protection of freshwater aquatic life.

(c) WQBELs. Dilution credits are not being granted for zinc. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) of 2.58 ug/L and 5.17 ug/L, respectively, based on the Basin Plan maximum objective for the protection of freshwater aquatic life. Due to the Discharger's new ability to store water that previously discharged to the Sacramento River at D-002, it is unknown whether an infrequent discharge from D-002 consisting of late-season industrial storm water would comply with this effluent limit. If compliance is not achieved, it is the Discharger's intent to expand its storage capacity to prevent discharge from D-002 in the future, or to treat the discharge to comply.

4. WQBEL Calculations

- a. This Order includes WQBELs for cadmium, copper, lead, nickel, and zinc. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4 through e, below. See Attachment H for the WQBEL calculations.
- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

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

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

where:

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

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For 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 certain 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. For Basin Plan priority pollutants such as cadmium, copper, lead, and zinc, the SIP procedures described above were used.
- 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.

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

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

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

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_{chroni}

**Summary of Water Quality-based Effluent Limitations
 Discharge Point D-002**

Table F-11. Summary of Water Quality-Based Effluent Limitations.

| Parameter | Units | Effluent Limitations | | | | |
|----------------------------|----------|----------------------|----------------|---------------|-----------------------|-----------------------|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Total Suspended Solids | mg/L | | | 50 | | |
| Settleable Solids | mL/L | 0.1 ¹ | | 0.2 | | |
| Cadmium, total recoverable | ug/L | 0.02 | | 0.05 | | |
| Copper, total recoverable | ug/L | 0.80 | | 1.6 | | |
| Lead, total recoverable | ug/L | 0.14 | | 0.28 | | |
| Nickel, total recoverable | ug/L | 6.07 | | 12.2 | | |
| Zinc, total recoverable | ug/L | 2.58 | | 5.17 | | |
| pH | pH units | | | | 6.5 | 8.5 |

(1) For calculating Monthly Averages, use Zero for Non-Detects (<0.1).

5. Whole Effluent Toxicity (WET)

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

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at 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.*" Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

| | |
|--|-----|
| Minimum for any one bioassay ----- | 70% |
| Median for any three or more consecutive bioassays during the same discharge season.----- | 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 III-8.00). Based on chronic WET testing performed by the Discharger on 8 December 2005, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective.

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 Region³ that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a*

³ 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)

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). This Order also includes a narrative effluent limitation for chronic toxicity, chronic WET monitoring requirements, and a provision that requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity.

To ensure compliance with the Basin Plan’s narrative toxicity objective, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, Special Provisions 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 Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan. 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 toxicity has been demonstrated.

D. Final Effluent Limitations

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 concentration. In addition, pursuant to the exceptions to mass limitations provided in s(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. This Order does not include mass-based limitations for Priority Pollutants because the criteria are expressed in terms of concentration.

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 any alternative averaging periods is discussed in section IV.C.3. of this Fact Sheet.

For effluent limitations based on Primary and Secondary MCLs, except nitrate and nitrite, this Order includes annual average effluent limitations. The Primary and Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate and nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations.

An averaging period for compliance with the pH limitation may be used upon approval by the Executive Officer.

3. Satisfaction of Anti-Backsliding Requirements.

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for bis-2-ethylhexylphthalate. The relaxation of effluent limitation is consistent with the anti-backsliding requirements of the CWA and federal regulations.

Order No. R5-2004-0100 required that bis-2-ethylhexylphthalate be monitored at a frequency of twice per month. Order No. R5-2004-0100 had an interim MDEL of 15.6 ug/L for bis-2-ethylhexylphthalate. Detections of bis-2-ethylhexylphthalate may have been due to plastics used for sampling or analytical equipment. The discharger provided analytical results from 24 sampling events since January 2006 showing that bis-2-ethylhexylphthalate was not truly present in the discharge.

40 CFR 122.44(l)(2)(i)(B) allows that a permit may be reissued containing a less stringent effluent limitation for a pollutant, if information is available which was not available at the time of permit issuance and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. Therefore, effluent limitations for bis-2-ethylhexylphthalate is not required in this permit.

4. Satisfaction of Antidegradation Policy

- a. **Surface Water.** This permit does not allow any increase in the discharge to surface water. In fact, due to the facility modifications, the frequency of discharge, the volume of the discharge, and the mass and concentration of pollutants discharged to surface waters will be reduced. The permitted surface

water 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 and control of the discharge. The impact on the existing water quality will be insignificant.

The facility, including the network of ponds, is located relatively close to the Sacramento River. Shallow groundwater in the area flows under the facility, thereby interacting with the ponds, and then to the Sacramento River. No indirect impacts to the Sacramento River from the discharge into the ponds is expected due to soil attenuation, dilution in groundwater, and dilution with the significant year round flows in the river. However, to provide reasonable evidence that no impact is occurring, samples were collected from the river above and below, and along-side the facility. The samples were analyzed for EC, Tannins & Lignins, and color. These parameters were selected as the most likely to show any impact. The results of the analyses show that there is no increase in any of the parameters in the Sacramento River as the river flows past the facility.

- b. **Groundwater.** The Discharger utilizes a network of ponds to contain comingled cogeneration process water, log deck recycle water, log deck storm water, and industrial storm water.

Degradation of groundwater may be permitted where it has been demonstrated that any change will be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the Basin Plan. Some degradation of groundwater after effective source control, treatment, and control may be determined to be consistent with Resolution No. 68-16 provided that:

- i. the degradation is limited in extent;
- ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in pond system wastewater as specified in the groundwater limitations in this Order;
- iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

On multiple events in 2003, 2008, 2010, and 2011 samples were collected from the cogeneration discharge and the network of ponds and analyzed for general chemistry (pH, EC, color, hardness, etc.), semi-volatile organic compounds, Tannins and Lignins, volatile organic compounds, metals, pesticides, PCBs, Dioxin, and asbestos.

The Discharger submitted a report in August 2010 justifying that the theoretical impacts of wastewater in the pond system would have a minimal impact on groundwater and that the impacts from electrical conductivity would not result in the exceedance of any water quality criteria/objective. Specifically, electrical conductivity would increase no more than 7 umhos/cm (approximately 4%) to a maximum of 207 umhos/cm, well below the most stringent water quality objective of 700 umhos/cm.

In October 2010 the Discharger collected an effluent sample of the cooling tower and boiler blowdown water. An evaluation of the impacts to groundwater from pollutants detected in the effluent discharge does not indicate that the calculated groundwater concentrations would exceed any water quality objectives, nor would the resulting groundwater concentrations cause any significant degradation.

In November 2010 the Discharger sampled and analyzed the wastewater in the pond system for semi-volatile organic compounds (SVOCs). As before, an evaluation of the impacts to groundwater from pollutants detected in the effluent discharge does not indicate that the calculated groundwater concentrations would exceed any water quality objectives, nor would the resulting groundwater concentrations cause any significant degradation.

A summary of the maximum assumed impacts is provided in the table below. Except for EC, background was assumed to be zero because no other background groundwater quality information was available, and because this approach results in the worst-case estimate of increased concentration. For EC, the measured background concentration from the offsite well was used.

| Pollutant | Units | Estimated Resulting Concentration | Increase Above Assumed Background | Applicable Water Quality Objective |
|-------------------|-------------|-----------------------------------|-----------------------------------|------------------------------------|
| EC | umhos/cm | 207 | 7 | 700 |
| Tannins & Lignins | mg/L | 1.4 | 1.4 | none |
| Color | Color units | 8.3 | 8.3 | 15 |
| Chloroform | ug/L | 0.03 | 0.03 | 80 |
| Iron | ug/L | 9 | 9 | 300 |
| Arsenic | ug/L | 0.2 | 0.2 | 10 |
| Chromium | ug/L | 0.1 | 0.1 | 50 |
| Copper | ug/L | 0.1 | 0.1 | 1000 |
| Lead | ug/L | 0.02 | 0.02 | 15 |
| Nickel | ug/L | 0.1 | 0.1 | 100 |
| Zinc | ug/L | 0.5 | 0.5 | 5000 |

The facility does not yet have a groundwater monitoring well network. Therefore, the Discharger was required to use limited data from an offsite, upgradient monitoring well, and make use of data from existing ponds that are seasonally open to the shallow groundwater table. In this manner, and using worst-case assumptions, and conservative estimates and calculations, the Discharger was able to demonstrate that there are not and will not be any significant groundwater impacts, other than

very small increases (as shown in the table above) in groundwater underlying the facility.

Relying on indirect measurements, modeling, and conservative assumptions indefinitely would be inappropriate. Therefore, this order requires the Discharger to install a groundwater monitoring network, and regularly collect samples. This order also prohibits the Discharger from increasing groundwater concentrations more than estimated in the table above, and prohibits any exceedance of an applicable water quality objective. This order also requires that the Discharger submit an Antidegradation Analysis Update that presents the results of the land discharge and groundwater monitoring to date, and explains whether or not the conclusions reached in the original Antidegradation Analysis included in the Report of Waste Discharge are valid. The Antidegradation Analysis Update will address both the existing discharge and the proposed new discharge. After reviewing the Antidegradation Analysis Update, the Regional Water Board may reopen this Order as described in the Reopener Provisions. The Regional Water Board may find that the existing discharge, and the proposed new discharge are or are not consistent with the State and Federal antidegradation policies, or that additional information is necessary.

5. Stringency of Requirements for Individual Pollutants

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.

**Summary of Final Effluent Limitations
 Discharge Point No. D-002**

Table F-12. Summary of Final Effluent Limitations

| Parameter | Units | Effluent Limitations | | | | | Basis ¹ |
|------------------------|----------------|----------------------|----------------|---------------|-----------------------|-----------------------|--------------------|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| pH | Standard Units | | | | 6.5 | 8.5 | BP |
| Total Suspended Solids | mg/L | | | 50 | | | |
| Settleable Solids | mL/L | 0.1 | | 0.2 | | | |

| Parameter | Units | Effluent Limitations | | | | | Basis ¹ |
|----------------------------|-------|----------------------|----------------|---------------|-----------------------|-----------------------|--------------------|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| Cadmium, total recoverable | ug/L | 0.02 | | 0.05 | | | BP |
| Copper, total recoverable | ug/L | 0.80 | | 1.6 | | | CTR |
| Lead, total recoverable | ug/L | 0.14 | | 0.28 | | | CTR |
| Nickel, total recoverable | ug/L | 6.07 | | 12.2 | | | CTR |
| Zinc, total recoverable | ug/L | 2.58 | | 5.17 | | | BP |

¹ BP – Based on water quality objectives contained in the Basin Plan.
 CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.

E. Interim Effluent Limitations. Not Applicable

F. Land Discharge Specifications. Not Applicable

G. Reclamation Specifications. Not Applicable

H. Best Management Practices. See Fact Sheet, Section VII.B.3

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

- I. 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 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 and California/National Toxics Rule criteria for bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

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 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 this Facility.

A. Influent Monitoring. Not Applicable

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 22.44(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 pH, settleable solids, turbidity, total suspended solids, hardness, copper, lead, zinc, acute and chronic toxicity have been retained from Order No. R5-2004-0100, and nickel has been added to determine compliance with effluent limitations for these parameters.
3. Effluent monitoring frequencies and sample types for chemical oxygen demand, electrical conductivity, hardness, oil and grease, and tannins and lignins have been retained from the previous Order. While none of the above constituents demonstrates reasonable potential, all are present and have the potential to adversely affect water quality. This Order requires monitoring sufficient to provide data for future reasonable potential analyses.

C. Whole Effluent Toxicity Testing Requirements

The Basin Plan states that “[a]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.” The Basin Plan requires that “[a]s a minimum, compliance with this objective...shall be evaluated with a 96-hour bioassay.” This Order requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective.

The receiving surface water for the Facility is the Sacramento River, an inland surface water providing freshwater aquatic habitat. Beneficial uses of the Sacramento River include cold freshwater habitat (COLD); cold spawning, reproduction, and/or early development (SPWN); and wildlife habitat (WILD). Given that the receiving stream has beneficial uses of cold freshwater habitat, cold migration of aquatic organisms, and cold spawning, reproduction, and/or early development, it is appropriate to use a cold/warm-water species such as *Pimephales promelas* (fathead minnows) for aquatic toxicity bioassays.

USEPA has approved test methods for of *Pimephales promelas*, *Selenastrum capricornutum*, and *Ceriodaphnia dubia* for assessing chronic toxicity in freshwater organisms.

1. **Acute Toxicity.** Monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** 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.

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 in groundwater, when compared to background. The monitoring must, at a minimum, allow for complete assessment of groundwater impacts including the vertical and lateral extent of degradation if present, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be

degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with 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. 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. Evidence in the record includes cooling tower blowdown and pond system monitoring data that indicates the presence of constituents that may degrade groundwater and surface water. If subsequent groundwater monitoring indicates that water quality objectives are being exceeded, or that the impacts analysis underestimated any impacts, then improvements such as lining the ponds will be required.

E. Other Monitoring Requirements

1. Storm Water monitoring

Federal Regulations for storm water discharges were promulgated by USEPA on 16 November 1990 (40 CFR Parts 122, 123, and 124). The regulations require specific categories of facilities, which discharge storm water associated with industrial activity (storm water), to obtain NPDES permits and to implement Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to reduce or eliminate industrial storm water pollution. This Order implements the regulations, and relieves the Discharger from obtaining coverage under the general industrial storm water permit.

2. Priority Pollutants

The Discharger shall conduct monitoring as specified in Attachment E of this Order to determine if the discharge from D-002 contains priority pollutants identified in the California Toxics Rule and National Toxics Rule.

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. 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.
- b. **Priority Pollutants.** 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. **Constituent Study.** There are indications that the discharge may contain constituents (e.g., aluminum, iron, manganese) that have reasonable potential to cause or contribute to an exceedance of water quality objectives. This Order requires the Discharger to conduct monitoring for these constituents as outlined in the Monitoring and Reporting Program (Attachment E). This reopener provision allows the Regional Water Board to reopen this Order for additional effluent limitations and requirements for these constituents if after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective.
- d. **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, and for other applicable pollutants such as aluminum. 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 cadmium, cooper, lead, 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.

- e. **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.
- f. **CEQA.** This Order may be reopened to make any appropriate findings, and require implementation of any identified water quality mitigation measures as a result of the CEQA process for the new cogeneration facility.
- g. **Title 27 Exemption.** Once the results of groundwater monitoring and the Title 27 Exemption Analysis Update required by this Order are submitted, this Order may be reopened to add or modify Findings, limits, or other conditions as appropriate.
- h. **Antidegradation.** Once the results of groundwater monitoring and the Antidegradation Analysis Update required by this Order are submitted, this Order may be reopened to add or modify Findings, limits, or other conditions as appropriate.

2. Special Studies and Additional Monitoring Requirements

- a. **Groundwater Monitoring Network and Groundwater Limits Report.** To determine compliance with the groundwater limitations contained in this Order, and to provide information for the Title 27 Exemption Analysis Update and Antidegradation Analysis Update required by this Order, the Discharger is required to install an adequate groundwater monitoring network. The groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of monitoring wells downgradient of the treatment, storage, and disposal units that do or may release waste constituents to groundwater.

Currently, there are no groundwater monitoring wells at the Facility. The Discharger shall install groundwater monitoring wells, collect groundwater data in accordance with the Monitoring and Reporting Program in Attachment E of this Order, and submit a report proposing updated numerical groundwater limitations sufficient to ensure that groundwater does not contain pollutants in concentrations higher than determined appropriate through the Title 27 Exemption Analysis and the Antidegradation Analysis.

- b. **Title 27 Exemption Analysis Update.** Within 18 months of the effective date of this Order, the Discharger shall submit a Title 27 Exemption Analysis Update (Title 27 Update). The Title 27 Update shall present the results of the land discharge and groundwater monitoring to date, and explain whether or not the conclusions reached in the original Title 27 Exemption Analysis included in the

Report of Waste Discharge are valid. The Title 27 Update shall address both the existing discharge and the proposed new discharge. After reviewing the Title 27 Update, the Regional Water Board may reopen this Order as described in the Reopener Provisions. The Regional Water Board may find that a Title 27 exemption is or is not appropriate, or that additional information is necessary.

- c. **Antidegradation Analysis Update.** Within 18 months of the effective date of this Order, the Discharger shall submit an Antidegradation Analysis Update. The Antidegradation Analysis Update shall present the results of the land discharge and groundwater monitoring to date, and explain whether or not the conclusions reached in the original Antidegradation Analysis included in the Report of Waste Discharge are valid. The Antidegradation Analysis Update shall address both the existing discharge and the proposed new discharge. After reviewing the Antidegradation Analysis Update, the Regional Water Board may reopen this Order as described in the Reopener Provisions. The Regional Water Board may find that the existing discharge, and the proposed new discharge are or are not consistent with the State and Federal antidegradation policies, or that additional information is necessary.
- d. **Log Yard Monitoring Plan.** The Discharger shall develop a work plan for conducting log yard runoff monitoring and BMPs implementation within the area of the P&H Portal Crane. The work plan shall be submitted to the Regional Water Board for approval **by 15 September 2012**. The intent is to prevent possible impacts to groundwater due to the high organic deposition and develop BMPs as necessary. The monitoring and BMPs implementation will begin following approval and will continue as approved in the work plan.
- e. **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 of the Executive Officer.
- f. **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 III-8.00.) Based on annual whole effluent chronic toxicity testing performed by the Discharger from November 2005 through November 2008, the discharge did not demonstrate a reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a Toxicity Reduction Evaluation (TRE) Work Plan in accordance with EPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity has been demonstrated.

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

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

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

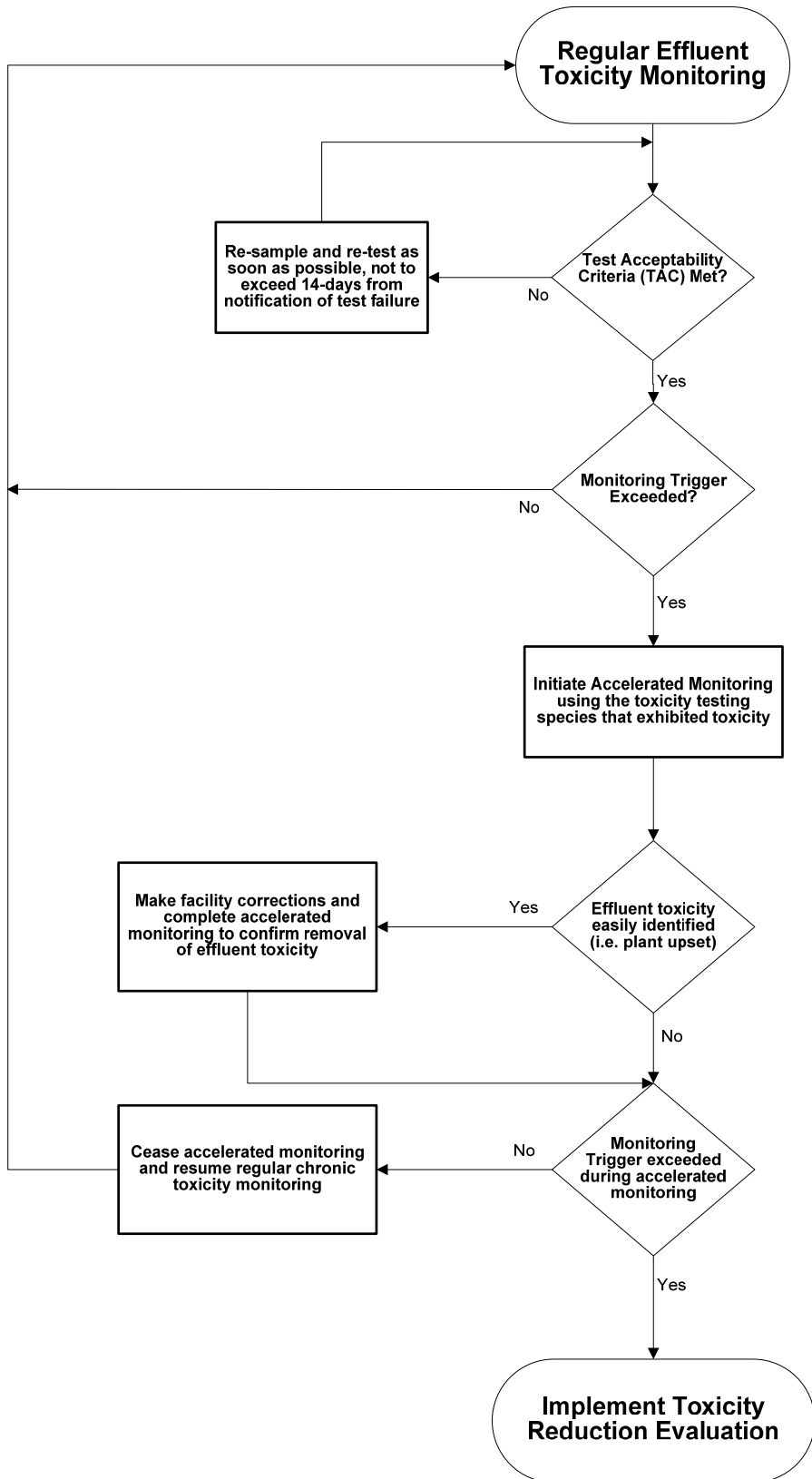
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, (EPA/833B-99/002), August 1999.
- *Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures*, Second Edition, EPA 600/6-91/005F, 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**



g. Storm Water Pollution Controls.

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

3. Best Management Practices and Pollution Prevention – Not Applicable

4. Construction, Operation, and Maintenance Specifications

a. Pond Operating Requirements.

- i. The treatment facility shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- ii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
- iii. 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, and
 - c) Vegetation, debris, and dead algae shall not accumulate on the water surface.
- iv. Freeboard in the Recycle Pond and the Retention Pond shall not be less than 2 feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the ponds, no overflow of the

ponds occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

6. Special Provisions for Municipal Facilities (POTWs Only). - Not Applicable

7. Other Special Provisions

- a. 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.
- b. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition or limitation contained in this Order, this Order requires the Discharger to notify the Regional Water Board by telephone (530) 224-4845 (or to the Regional Water Board staff assigned to the facility) within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Federal Standard Provision [40 CFR §122.41(l)(6)(i)].
- c. Prior to making any change in the discharge point, place of use, or purpose of use of the storm water, the Discharger must obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).
- d. Ownership Change. To maintain accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if, and when, there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.

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 paragraph of Federal Standard Provision V.B.5 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 California Water Code. Transfer shall be approved or disapproved in writing by the 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 physical posting, mailing, 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 should be received at the Regional Water Board offices by **5 p.m. on 28 February 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: 30 November, 1/2 December 2011
Time: 8:30 am
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 <http://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 Resources Control 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 (RWD), 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 (530) 224-4845.

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 Bryan Smith at (530) 226-3425.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS.

| Constituent | Units | MEC | B | C | CMC | CCC | Water & Org | Org. Only | Basin Plan | MCL | Reasonable Potential |
|---------------------------|-------|--------|------|-------|-------|-------|-------------|-----------|------------|-------|----------------------|
| Antimony | ug/L | 0.8 | N/A | 6.00 | N/A | N/A | 14 | 4,300 | N/A | 6.00 | No |
| Arsenic | ug/L | 0.8 | N/A | 10.00 | 340 | 150 | N/A | N/A | N/A | 10.00 | No |
| Beryllium | ug/L | 0.1 | N/A | 4.00 | N/A | N/A | N/A | Narrative | N/A | 4.00 | No |
| Cadmium | ug/L | 0.19 | 0.06 | 0.05 | 0.33 | 0.40 | N/A | Narrative | 0.05 | 5.00 | Yes |
| Chromium (III) | ug/L | 8.6 | N/A | 31.4 | 263.4 | 31.4 | N/A | Narrative | N/A | N/A | No |
| Chromium (VI) | ug/L | 2 | N/A | 11.4 | 16 | 11.4 | N/A | Narrative | N/A | 50.0 | No |
| Copper | ug/L | 11.2 | 4.7 | 1.30 | 1.60 | 1.30 | 1,300 | N/A | 1.67 | N/A | Yes |
| Lead | ug/L | 4.3 | 1.0 | 0.17 | 4.35 | 0.17 | N/A | Narrative | N/A | 15.0 | Yes |
| Mercury | ug/L | 0.0206 | N/A | 0.050 | N/A | N/A | 0.050 | 0.051 | N/A | 2.0 | No |
| Nickel | ug/L | 8.7 | 1.13 | 7.4 | 66.9 | 7.4 | 610 | 4,600 | N/A | 100.0 | Yes |
| Selenium | ug/L | 0.7 | N/A | 5.00 | 20 | 5 | N/A | Narrative | N/A | 50.00 | No |
| Silver | ug/L | 0.17 | N/A | 0.67 | 0.667 | N/A | N/A | N/A | N/A | N/A | No |
| Thallium | ug/L | 0.2 | N/A | 1.70 | N/A | N/A | 1.7 | 6.3 | N/A | 2.00 | No |
| Zinc | ug/L | 349 | 12.7 | 5.18 | 17.03 | 17.03 | N/A | N/A | 5.18 | N/A | Yes |
| Cyanide | ug/L | 2.0 | N/A | 5.2 | 22 | 5.2 | 700 | 220,000 | N/A | 200 | No |
| Bis-2-ethylhexylphthalate | ug/L | 2 | 0.9 | 1.0 | N/A | N/A | 1.8 | 5.9 | N/A | N/A | No |

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not Applicable

ND = Non-detect

ATTACHMENT H – CALCULATION OF WQBELS

| Parameter | Units | Most Stringent Criteria | | | Dilution Factors | | | HH Calculations | | | Aquatic Life Calculations | | | | | | | | Final Effluent Limitations | | |
|----------------------------|-------|-------------------------|--------------------|------|------------------|-----|-----|--|------------------------------------|--------------------|---------------------------------|----------------------|-----------------------------------|------------------------|------------|-------------------------------|--------------------|-------------------------------|----------------------------|-------------|-------------|
| | | HH | CMC or BP Max Obj. | CCC | HH | CMC | CCC | EC _{AHH} = AMEL _{HH} | AMEL/MDEL Multiplier _{HH} | MDEL _{HH} | ECA Multiplier _{acute} | LTA _{acute} | ECA Multiplier _{chronic} | LTA _{chronic} | Lowest LTA | AMEL Multiplier ₉₅ | AMEL _{AL} | MDEL Multiplier ₉₉ | MDEL _{AL} | Lowest AMEL | Lowest MDEL |
| Cadmium, Total Recoverable | ug/L | | 0.05 | 0.40 | -- | -- | -- | -- | -- | -- | 0.321 | 0.02 | 0.527 | 0.40 | 0.02 | 1.55 | 0.02 | 3.11 | 0.05 | 0.02 | 0.05 |
| Copper, Total Recoverable | ug/L | 1300 | 1.60 | 1.30 | -- | -- | -- | -- | -- | -- | 0.321 | 0.513 | 0.527 | 0.687 | 0.513 | 1.55 | 0.80 | 3.11 | 1.60 | 0.80 | 1.60 |
| Lead, Total Recoverable | ug/L | | 4.35 | 0.17 | -- | -- | -- | -- | -- | -- | 0.321 | 1.40 | 0.527 | 0.09 | 0.09 | 1.55 | 0.14 | 3.11 | 0.28 | 0.14 | 0.28 |
| Nickel, Total Recoverable | ug/L | | 66.89 | 7.44 | -- | -- | -- | -- | -- | -- | 0.321 | 21.47 | 0.527 | 3.92 | 3.92 | 1.55 | 6.07 | 3.11 | 12.2 | 0.14 | 0.28 |
| Zinc, Total Recoverable | ug/L | | 5.18 | 17.0 | -- | -- | -- | -- | -- | -- | 0.321 | 1.66 | 0.527 | 8.97 | 1.66 | 1.55 | 2.58 | 3.11 | 5.17 | 2.58 | 5.17 |

¹ USEPA Ambient Water Quality Criteria.

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. Add details
- II. Monitoring Requirements.**
- A. Annual** priority pollutant samples shall be collected from the effluent (EFF-002), and receiving waters (RWS-001) and analyzed for the constituents listed in Table I-1. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water. This monitoring does not need to duplicate any monitoring already required by the Monitoring and Reporting Program in Attachment E.
 - B. Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

C. Sample type. All effluent samples shall be taken as grab 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 ug/L or noted | Suggested Test Methods |
|--------------------------|------------------------------------|------------|--|--|--|------------------------|
| | | | Basis | Criterion Concentration ug/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 |
| 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 |

| CTR # | Constituent | CAS Number | Controlling Water Quality Criterion for Surface Waters | | Criterion Quantitation Limit ug/L or noted | Suggested Test Methods |
|-------------------------------|---------------------------------------|------------|--|--|--|------------------------|
| | | | Basis | Criterion Concentration ug/L or noted ¹ | | |
| 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 |
| 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 |

| CTR # | Constituent | CAS Number | Controlling Water Quality Criterion for Surface Waters | | Criterion Quantitation Limit ug/L or noted | Suggested Test Methods |
|-------------------|------------------------------|------------|--|--|--|------------------------|
| | | | Basis | Criterion Concentration ug/L or noted ¹ | | |
| 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 |
| 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 >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 |

| CTR # | Constituent | CAS Number | Controlling Water Quality Criterion for Surface Waters | | Criterion Quantitation Limit ug/L or noted | Suggested Test Methods |
|--------------------------|---------------------------------------|------------|--|--|--|------------------------|
| | | | Basis | Criterion Concentration ug/L or noted ¹ | | |
| 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 |
| 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 |

| CTR # | Constituent | CAS Number | Controlling Water Quality Criterion for Surface Waters | | Criterion Quantitation Limit ug/L or noted | Suggested Test Methods |
|---------------------------|------------------------------------|------------|--|--|--|-------------------------|
| | | | Basis | Criterion Concentration ug/L or noted ¹ | | |
| 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 |
| | 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 |

| CTR # | Constituent | CAS Number | Controlling Water Quality Criterion for Surface Waters | | Criterion Quantitation Limit ug/L or noted | Suggested Test Methods |
|-------|-------------------------------|------------|--|--|--|------------------------|
| | | | Basis | Criterion Concentration ug/L or noted 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 | °F | | |
| | Total Dissolved 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 ug/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 Fluorescence, 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).

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.