CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2009-0044
NPDES NO. CA0081957

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

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

Table 1. Discharger Information

Discharger	Wheelabrator Shasta Energy Company, Inc. and Wheelabrator Lassen, Inc.
Name of Facility	Wheelabrator Shasta Energy Company, Inc. and Wheelabrator Lassen, Inc.
Facility Address	20811 Industry Road, 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 Wheelabrator Shasta Energy Company, Inc. 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-001	Retention Pond	40º 25’ 49” N	122º 16’ 32” W	Anderson Cottonwood Irrigation District Canal
D-003	Westerly Under Drain	40º 25’ 49” N	122º 16’ 32” W	Anderson Cottonwood Irrigation District Canal
IW-Shasta (D-002)	Boiler Blowdown, Storm Water, Groundwater, Internal under drain			Internal Discharge to Retention Pond
IW-Lassen	Lassen Facility Discharge			Internal Discharge to Retention Pond

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**24 April 2009**
This Order shall become effective on:	**24 April 2009**
This Order shall expire on:	**01 April 2014**
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IT IS HEREBY ORDERED, that Order No. **R5-2003-0013** is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code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 24 April 2009.

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	Wheelabrator Shasta Energy Company, Inc. and Wheelabrator Lassen, Inc.
Name of Facility	Wheelabrator Shasta Energy Company, Inc. and Wheelabrator Lassen, Inc.
Facility Address	20811 Industry Road
	Anderson, CA 96007
	Shasta County
Facility Contact, Title, and Phone	Rodney Mortenson, Facility Manager (530) 339-7600 Teri Ard, Manager EH&S (530) 339-7627
Mailing Address	20811 Industrial Road
	Anderson, CA 96007
Type of Facility	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. Wheelabrator Shasta Energy Company, Inc. and Wheelabrator Lassen, Inc. (hereinafter jointly referred to as "Discharger") are currently discharging pursuant to Order No. R5-2003-0013 and National Pollutant Discharge Elimination System (NPDED) Permit No. CA0081957. The Dischargers submitted a Report of Waste Discharge (RWD), dated 20 June 2007 applied for a NPDES permit renewal to discharge an unspecified volume of process water and storm water from the Facility. The application was deemed complete on 3 July 2007.

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 Descriptions. Wheelabrator Shasta Energy Company, Inc. owns and operates a 54-megawatt (MW) wood-fired electrical generating facility (Shasta facility). Wheelabrator Lassen, Inc. owns and operates a 48.5-MW natural gas fired plant (Lassen facility). The Shasta facility and Lassen facility are located south of the city of Anderson in Sections 24 and 26, T30N, R4W, MDB&M, as shown in Attachment B.

The properties are located in the 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.

1. **Wheelabrator Shasta Facility**
   The Discharger owns and operates a 54-megawatt wood-fired electrical generating facility south of the city of Anderson in Section 26, T30N, R4W, MDB&M, as shown on Attachment B. Wheelabrator Shasta Energy Company, Inc. owns the 77-acre property (Assessor's Parcel Nos. 090-360-033 and 090-360-037). The Facility consists of biomass storage areas, two truck scales, three platform truck dumpers, a hydraulic log loader, hammer hog with scalpers and conveyors, V-drum chipper, fuel dumping and metering bins, chip bins infeed/offload conveyors, one 50-foot high stacker with 1,100 foot long overpile reclaimers, three boilers each producing 190,000 lb/hr of steam, three ash reinjection systems, three multicyclone collectors, three electrostatic precipitators, three ammonia injection NOX control systems, four turbine generators, two multi-cell evaporator cooling towers, an electrical switch yard, secondary contained aboveground petroleum and hazardous materials storage areas, underground petroleum storage, water treatment chemical storage and use, equipment fueling and maintenance areas, paved and unpaved roadways, two wells, a laboratory, two wastewater ponds, one storage pond, a septic tank leachfield system, and an office (see Attachment B-1).

   Water for industrial and domestic use at the Shasta facility is pumped from two on-site wells. The wells are installed to depths of approximately 500 feet below ground surface (bgs). The Shasta County Department of Resource Management, Environmental Health Division (SCEHD), regulates the Discharger's drinking water. SCEHD has not detected constituents in the water supply exceeding drinking water standards.

   The Shasta facility's wastes discharged to the retention pond include: boiler blowdown, cooling tower blowdown, wastewater from plant maintenance, storm water runoff, and groundwater from the internal under drain system.

   The retention pond continuously discharges to the Anderson Cottonwood Irrigation District (ACID) Canal at Discharge Points D-001, a tributary of Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, tributaries of Cottonwood Creek at latitude 40°25'49" and longitude 122°16'32" (Assessor's Parcel Numbers 090-360-037), a water of the United States.

2. **Wheelabrator Lassen Facility**
   The Discharger operates a 48.5-MW natural gas fired electrical generating facility south of the city of Anderson in Section 24, T30N, R4W, MDB&M, as shown on Attachment B. The Lassen facility occupies approximately four acres, of which a total of 0.68 acres are leased from Shasta Acquisition. The leased land is located on portions of the following parcels: Assessor's Parcel Numbers 090-150-001, 090-150-008, and 090-150-009. The remaining land (not leased by Wheelabrator Lassen, Inc.) is located on these three parcels, as well as Assessor's Parcel Numbers 090-150-011 and 090-170-005. Surface water drainage and non-contact cooling water is discharged to the Anderson Cottonwood Irrigation District (ACID) canal, via the retention pond located at the Shasta facility, a tributary of Cottonwood

Creek, at latitude 40°25'49" and longitude 122°16'32" (Assessor's Parcel Numbers 090-360-037).

All power generating equipment is stored in covered buildings. Power generation equipment includes a heat recovery steam generator that produces approximately 120,000 lb/hr of steam, an electrical generator (combined gas turbine and power turbine), a gas generator evaporative cooler, and an electrical switchyard. Additionally, the following are at the site: bulk petroleum tanks, small volume petroleum product storage area, oil-filled transformers, storage and use of water treatment chemicals, equipment maintenance areas, paved and unpaved roadways, three water supply wells, a laboratory, a domestic waste holding tank, and an office. A 14-inch pipeline was originally installed between the Shasta facility and the former Shasta Paper Company to transport steam. It was modified in December 2002 to convey process water and storm water approximately 3,800 feet from the Lassen facility to the Shasta facility retention pond for discharge.

The Lassen facility's wastes discharge to the retention pond at the Shasta facility and include: boiler blowdown, continuous sample line discharge, reverse osmosis brine concentrate, demineralization system backwash, reverse osmosis pre-filter backwash, cooling water, distillation system cooling water, and storm water runoff. Domestic waste is stored in a concrete vault and hauled offsite for disposal as necessary.

3. Discharge Locations

Effluent from both the Lassen facility and Shasta facility continuously discharges to the retention pond on the Shasta facility property prior to discharge to the ACID Canal. The following two distinct discharge locations and two distinct internal waste streams outfalls are in the vicinity of the retention pond (see Attachment B).

- **Discharge Point D-001.** Retention pond outfall at Latitude 40° 25' 49" N and Longitude 122° 16' 32" W that drains into a conveyance structure that leads directly to the ACID Canal. The retention pond receives internal waste flows from both the Shasta facility (IW-Shasta) and the Lassen facility (IW-Lassen).

- **Discharge Point D-003.** Outfall from the Shasta facility "westerly under drain" system. This system intercepts groundwater from the northern and western portions of the Shasta facility and discharges directly to the ACID Canal, bypassing the retention pond.

- **IW-Shasta (D-002).** Shasta facility internal waste outfall to the retention pond. IW-Shasta includes the following Shasta facility waste streams: boiler blowdown, cooling tower blowdown, plant maintenance water, storm water runoff, and groundwater from the "internal under drain" system. The "internal under drain" system conveys groundwater from beneath the Turbine building, as well as from the southern and south-central portions of the property.

- **IW-Lassen.** Lassen facility pipeline outfall in to the retention pond. This pipeline carries blowdown water, cooling water, plant maintenance water, and limited storm water from the Lassen facility. The Discharger has installed a discharge header to dissipate thermal energy prior to discharge to the retention pond.

Effluent from both facilities, as well as surface water drainage, are discharged to the ACID Canal, a tributary of Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, and numerous downstream unnamed tributaries, which are tributaries of Cottonwood Creek. Annually, from April through October, water is diverted from the Sacramento River to the ACID Canal and used for irrigating pastures, hay, prunes, and home gardens and orchards. If the ACID Canal contains surplus water, overflows can discharge to the downstream tributaries. Generally, from November through April, the diversion ceases and the ACID Canal water consists of precipitation, storm water, and groundwater inflow. During major storm events, water discharges from the ACID Canal to the downstream tributaries are possible. Otherwise the ACID Canal is dry upstream of Wheelabrator's discharge since the water that remains in the canal infiltrates through the earthen canal bottom.

4. Septic System – Shasta Facility

Domestic wastewater from the Shasta facility discharges to a septic system consisting of lift station, septic tank, pump station, forced main to a distribution tank, and a leachfield consisting of six-lines (100 feet each) north of the office building. Approximately 1,600 gpd of domestic sewage, generated from restroom facilities at the administration building, turbine building, and maintenance building flow into a lift station and are pumped to a septic tank on the east side of the administration building. In 1994, due to high groundwater conditions and elevated concentrations of bacteria in the internal under drain system, the Discharger relocated the original leachfield, located adjacent to the administration building, to an area north of the office. The leachfield includes 600 feet of shallow leach line and a soil mound (approximately 950 cubic yards). Test pits in the new leachfield area found five feet of gravelly silt and sand underlain by three feet of gravelly sandy silt, becoming moist with depth. Silty/sandy clay was encountered at 8.5 and 9 feet, the bottom of the test pits.

Coliform bacteria continue to be detected in surface water discharges from the facility. The Discharger has conducted three separate investigations to determine the source of the bacteria. The Discharger's preliminary results indicate that the septic system may not be a contributing source of the bacteria. However, to ensure that the septic system is not a source of bacteria, the discharger is preparing a work plan to upgrade the septic system to include disinfection. Additional details can be found in Attachment F, Section II. G. Planned Changes.

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 CWC (commencing with section 13260).

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

F. Technology-based Effluent Limitations*.* Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards.

The discharge authorized by this Order must meet minimum federal technology-based requirements based on 40 CFR Part 423, that contains effluent limitation guidelines for steam electric power generating point source category. Fossil fuel is used secondarily at the Shasta facility and primarily at the Lassen facility. Therefore, 40 CFR 423 is applicable only to the Lassen facility discharge. In addition, since the Discharger does not spray water on logs at the Shasta facility, effluent limitations established in the Code of Federal Regulations, Wet Storage Subcategory (40 CFR Part 429, Subpart I) are not applicable to discharge from the Shasta facility.

40 CFR Part 423 includes limitations applicable to IW-Lassen for total suspended solids (TSS), pH, oil and grease, total copper, iron, total chromium, total zinc, free available chlorine, total residual chlorine, and the 126 Priority Pollutants in no detectable amount (except total chromium and total zinc). A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F, Section VI. B.).

G. Water Quality-based Effluent Limitations. 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, water quality-based effluent limitations (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 February 2007), 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. 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*." The Basin Plan does not specifically identify beneficial uses for the Anderson Cottonwood Irrigation District Canal, but does identify present and potential uses for the Cottonwood Creek, to which the Anderson Cottonwood Irrigation District Canal may discharge. These beneficial uses are as follows: municipal and domestic supply (MUN); agricultural supply, including stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation, including aesthetic enjoyment; commercial and sport fishing (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); cold fish migration (MIGR), warm spawning, reproduction, and/or early development (SPWN); cold spawning, reproduction, and /or early development (SPWN); and wildlife habitat (WILD).

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. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to the Anderson Cottonwood Irrigation District Canal are as summarized in Table 5, below.

Table 5. Basin Plan Beneficial Uses

Discharge Points	Receiving Water Name	Beneficial Use(s)
D-001 D-003	Anderson Cottonwood Irrigation District Canal (Tributary to Cottonwood Creek)	Existing: Municipal and domestic water supply (MUN). Agricultural supply, including stock watering (AGR); Contact (REC-1) and non-contact (REC-2) water recreation; Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); Fish migration (MIGR); Warm spawning, reproduction, and/or early development (SPAW); Cold spawning, reproduction, and /or early development (SPWN); and Wildlife habitat (WILD).
	Underlying Groundwater	Potential: 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 Anderson Cottonwood Irrigation District Canal and Cottonwood Creek are not listed as WQLS in the 303(d) list of impaired water bodies.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 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 18 May 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP

on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. **Compliance Schedules and Interim Requirements. –** In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Water Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was 25 September 1995 (see Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with USEPA policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, 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 Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under Section 5.3 of the SIP, a compliance schedule may not exceed five years from the date that the permit is issued or reissued, nor may it extend beyond ten years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules or 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 (WQS) become effective for CWA purposes. (40 CFR 131.21; 65 Fed. Reg. 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 and water quality-based limitations for individual pollutants. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. These limitations are more stringent than required by the CWA. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in establishing these requirements.

Water quality-based limitations 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 water quality-based limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. 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 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(I) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. All effluent limitations contained in this permit are at least as stringent as those in the previous Order No. R5-2003-0013.

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. Section 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 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached 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 Waste Discharge Requirements 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.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater, including industrial storm water at location or in a manner different from that described in the Findings, is prohibited.

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

C. The discharge of leachate from wood fuel stockpiles to surface waters of surface water drainage courses is prohibited.

D. The discharge of ash, bark, sawdust, wood, debris, or any other such wastes to surface water or surface water drainage courses is prohibited.

E. The direct discharge of hazardous or toxic substances, including water treatment chemicals, solvents, or petroleum products (i.e. oil, grease, gasoline, and diesel) to surface waters or groundwater is prohibited.

F. The direct discharge of domestic wastewater to the under drain system at the Shasta facility is prohibited.

G. The discharge of polychlorinated biphenyl compounds from the Lassen facility is prohibited.

H. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

I. Discharge of waste 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-001

1. Final Effluent Limitations – Discharge Point D-001

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point D-001, with compliance measured at Monitoring Location EFF-001, as described in the attached MRP (Attachment E):

Table 6. Final Effluent Limitations Discharge Point D-001.

Parameter	Units	Effluent Limitations			
		Average Monthly[2]	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chloride	mg/L	106	250		
Chlorine, total residual	mg/L	0.01	0.02		
pH[1]	Units			6.5[1]	9.0[1]
Settleable Solids	mL/L	0.1	0.2		
Electrical Conductivity	umhos/cm	700	1,000		
Sulfate	mg/L		250		

(1) Except for discharges associated with a 10-year 24-hour rainfall event, or greater.
(2) 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 from discharge point D-001shall be no less than:

   i. 70%, minimum for any one bioassay; and
   ii. 90%, median for any three or more consecutive bioassays.

c. The discharge of process water (non-storm water and under drain water) shall not exceed 4.5 mgd.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications –

1. Domestic Sewage

The Discharger is required to properly operate, maintain, and monitor the domestic sewage collection, treatment, and disposal system.

2. Sludge, Wood Waste, and/or Ash Storage

i. Collected screenings, sludge and other solids removed from liquid wastes, including pond sediments, shall be disposed of in a 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.

ii. The storage of sludge, wood waste, and ash the Shasta facility shall be done in a manner to prevent nuisance, pollution or impairment of beneficial uses of the Anderson Cottonwood Irrigation District Canal.

iii. 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.

iv. Ash removed from the Shasta 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).
- Any other use shall constitute disposal and shall be subject to Title 27, CCR requirements.

C. Internal Discharge Limitations – IW-Lassen and IW-Shasta

1. Shasta Facility (IW-Shasta)

a. The discharge of wastewater from the Shasta facility blowdown pond to the landscape irrigation system at the Shasta facility shall not have a pH less than 6.5 or greater than 9.0 or exceed the following:

Table 7. IW-Shasta Internal Limitations

Parameter	Unit	Average Monthly	Daily Maximum
Chloride	mg/L	106	250
Electrical Conductivity	umhos/cm	700	1000
Sulfate	mg/L		250

b. The dissolved oxygen content of the fire/cooling water pond, blowdown pond, and retention pond at the Shasta facility shall not be less than 1.0 mg/L for 16 hours in any 24-hour period.

2. Lassen Facility (IW-Lassen)

a. The discharge from the Lassen facility to IW-Lassen shall not have a pH less than 6.0 or greater than 9.0.

b. The discharge taken collectively from Lassen facility low volume waste sources and metal cleaning wastes shall not exceed the limits listed below. Low volume waste sources include but are not limited to: ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower cleaning wastes, and recirculating water systems.

Table 8. IW Lassen Internal Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly[1]	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorine, total residual	mg/L		0.2		
Chlorine, free available	mg/L	0.2	0.5		
Oil and Grease	mg/L	15	20		
pH	pH Units			6.0	9.0
Total Suspended Solids	mg/L	30	100		
Chromium, total	mg/L	0.2	0.2		
Copper, total	mg/L	1.0	1.0		
Iron, total	mg/L	1.0	1.0		
Zinc, total	mg/L	1.0	1.0		
126 Priority Pollutants[2]	ug/L	--	--		

(1) For calculating Monthly Averages, use Zero for Non-Detects (<0.1).
(2) No Detectable Amount from added Chemicals

D. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations Applicable to RSW-001 and RSW-002

Receiving water limitations are based on the Basin Plan water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Anderson Cottonwood Irrigation District Canal at RSW-002 as compared to RSW-001:

1. **Bacteria**. The Basin Plan includes a water quality objective that "*[I]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml*." Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective. This Order contains compliance determination language that recognizes that the Discharger's process wastewater and septic system (after improvements are completed) have been shown not to be responsible for elevated bacteria concentrations that have periodically been observed in the receiving water.

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, raised above 8.5, nor changed by more than 0.5 units. An averaging period may be applied when determining compliance with the pH limitation.

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 and Electrical Conductivity (EC)**. The electrical conductivity shall not exceed 230 micromhos/cm (50 percentile) or 235 micromhos/cm (90 percentile) at Knights Landing above Colusa Basin Drain; or 240 micromhos/cm (50 percentile) or 340 micromhos/cm (90 percentile) at I Street Bridge, based upon previous 10 years of record.

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

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

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

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

16. **Temperature**. The natural temperature to be increased by more than 5°F (3°C). "See compliance determination language in Section VII of this Order (main Order)."

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**. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
    c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

    Turbidity (NTU) shall be determined by (1) individual samples or (2) by samples taken over an appropriate averaging period.

B. Groundwater Limitations

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

a. Contain waste constituents in concentrations statistically greater than background water quality except that coliform organisms shall not exceed 2.2 MPN/100mL over a seven day period;
b. Exhibit a pH of less than 6.5 or greater than 8.5 pH units;
c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

4. In February 2007, the Discharger submitted a *Background Groundwater Quality Report*. The report shows statistically and graphically that the background groundwater and the downgradient groundwater are very similar in makeup. Additionally, there is no evidence that site activities have negatively affected groundwater downgradient of the site.

5. In July 2007, the Discharger submitted a *Report of Calculation of Numerical Limits for Groundwater Quality*. Numerical groundwater limitations were calculated using parametric, 99% prediction intervals. Central Valley Water Board staff concurred with the proposed limitations and sampling frequency on 20 July 2007.
The Discharger shall maintain compliance with the following numerical groundwater limitations at monitoring wells MW-4, MW-5, and MW-6:

Table 9. Groundwater Numerical Limitations

Constituent	Units	Limit
Alkalinity	mg/L	100
Arsenic	ug/L	4.1
Bicarbonate	mg/L	100
Calcium	mg/L	20
Chloride	mg/L	7.2
Electrical Conductivity	umhos/cm	230
Magnesium	mg/L	15
Nitrate as N	mg/L	1.20
pH	units	6.90-8.23
Potassium	mg/L	3.5
Sodium	mg/L	14
Sulfate	mg/L	7.5
Total Dissolved Solids	mg/L	210
Zinc	ug/L	300

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order. Some of these Standard Provisions are not applicable to electrical generators.

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 Clean Water Act, 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 Code of Federal Regulations (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 five 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 VI.A.2.i.

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 (POTW) 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 three 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 four years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

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

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

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

o. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (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.

r. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.

s. 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.

t. 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.

u. All monitoring and analysis 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.

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

w. 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.

x. 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)

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, 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. 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 is insufficient information to determine if the discharge contains constituents that have reasonable potential to cause or contribute to an exceedence of the water quality objectives: aluminum, iron, and manganese. This Order requires the Discharger to conduct monitoring for aluminum, iron, and manganese as outlined in the Monitoring and Reporting Program (Attachment E). If the Regional Board determines that implementation of effluent limitations is appropriate and necessary, this Order may be reopened.

d. **Mixing Zone and Dilution Studies.** Section 1.4 of the SIP established procedures for calculating effluent limitations. Included in the procedures is determination of a dilution credit, which the Regional Water Board may approve or disapprove at its discretion. However, the Discharger has not developed the information needed to determine a dilution credit. Consequently, this Order establishes final effluent limitations based on zero dilution. This Order may be reopened, and new effluent limitations adopted if a mixing zone and dilution study demonstrates that dilution credits are appropriate. A mixing zone in the ACID canal has been established for receiving water temperature impacts. See Section VII of this Order (main Order) for a discussion.

e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for arsenic, cadmium, chrome (VI), copper, 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.

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

2. Special Studies, Technical Reports, and Additional Monitoring Requirements

a. **Septic System Improvements.** The Discharger shall prepare a work plan to address improvements to the septic system including expansion of the leachfield area and disinfection/dechlorination of the wastewater at the Shasta facility. The work plan shall be completed and submitted to the Regional Water Board within 3 months of the effective date of this Order for approval by the Executive Officer. Within 3 months of approval by the Executive Officer, the discharger shall complete implementation of the work plan.

b. **Salinity Evaluation and Minimization Plan**. The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility as required in Section VI.C.3.b, below.

c. **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 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 it is detected. If the discharge exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent 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 Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

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

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

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

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

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.

iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is > **1 TUc** (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests every two weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

a) If the results of four (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 a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

b) If the source(s) of the toxicity is easily identified (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.

d. **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.

e. **Groundwater Monitoring.**
As required under the previous Order, the Discharger is required to monitor shallow groundwater in the vicinity of the leachfield at the Shasta facility. Shallow piezometers have been installed in the vicinity of the leachfield and are sampled to monitor for any impacts from the septic tank, force main, and leachfield.

Characterization of the bermed wood fuel storage area, blowdown pond, and retention pond indicates that leachate from these areas at the Shasta facility may have a reasonable potential to impact the underlying usable groundwater by migrating through the permeable subsurface materials. The previous Order required the Discharger to evaluate the potential impacts on usable groundwater, recommend the acceptable level of degradation that complies with Resolution 68-16, and determine appropriate groundwater limits. In July 2007 the Discharger submitted a report proposing numerical limits for groundwater quality within the monitoring wells. This Order establishes numerical groundwater limitations and monitoring requirements for the three-onsite monitoring wells.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program (PMP)**.

The Discharger shall develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more

sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either: 1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or 2) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP.

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. Annual 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:

(1) All PMP monitoring results for the previous year;
(2) A list of potential sources of the reportable priority pollutant(s);
(3) A summary of all actions undertaken pursuant to the control strategy; and
(4) A description of actions to be taken in the following year.

b. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility. The plan shall be completed and submitted to the Regional Water Board **within 6 months of the adoption date of this Order** for the approval by the Executive Officer.

Table 10. Salinity Evaluation and Minimization Plan

Task	Compliance Date
1 - Submit Work plan and Time Schedule	Within 6 months of the effective date of the Order
2 - Begin Study	Within 3 months of Regional Board approval of Workplan and Time Schedule
3 - Complete Study	As established by Task 1
4 - Submit Summary Report	60 days following completion of Task 3 (no greater than 2 years after the effective date of this Order)

4. Construction, Operation and Maintenance Specifications

a. **Storm Water 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. In particular,

a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
b) Weeds shall be minimized.
c) Dead algae, vegetation, and debris shall not accumulate on the water surface.

iii. Freeboard shall not be less than two feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond 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. 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 California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

1. **Compliance with Receiving Water Bacteria Limitations**
   Once the septic system improvements, including disinfection, are completed, the Discharger will no longer have any controllable sources of bacteria. Therefore, the Discharger shall not be held responsible for exceedences of receiving water violations for bacteria unless it can be shown that the Discharger's processes are responsible for the exceedence. The Regional Water Board recognizes that natural sources such as waterfowl in the retention pond may be responsible for the elevated bacteria concentrations that are periodically detected in the retention pond and the ACID canal receiving water. The Discharger is required to properly operate, maintain, and monitor the domestic sewage collection, treatment, and disposal system including the disinfection process.

2. **Compliance with Receiving Water Temperature Limitations**
   Effluent from both the Shasta and Lassen facilities, as well as surface water drainage, is discharged to the Anderson Cottonwood Irrigation District (ACID) agricultural irrigation canal system. The ACID canal is an artificial irrigation water conveyance system that delivers diverted Sacramento River water to agricultural customers in the ACID service area. Agricultural deliveries are generally made from May through October. During approximately November to April, diversions from the Sacramento River cease and the ACID canal contains only stormwater, groundwater inflow, and other flows, such as from the subject facilities. During the irrigation season, the ACID is a terminal conveyance, meaning all water is delivered to irrigation customers, and no water returns to natural waterways. During the winter, the ACID canal flows only intermittently. During significant winter storm events, however, sections of the ACID canal can overflow to natural waterways such as Schmeider Gulch, Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, and numerous other downstream unnamed tributaries, which are all tributaries of Cottonwood Creek, a tributary of the Sacramento River.

   The ACID treats its canal system with an aquatic herbicide called Magnacide H. The active ingredient in Magnacide H is acrolein, an extremely toxic compound to aquatic life. Central Valley Regional Board Order No. 87-110 was adopted on 26 June 1987 for the ACID's use of Magnacide. The Order authorizes the use of the herbicide in the ACID canal, in accordance with the USEPA and CDPR label restrictions. Magnacide is registered under the Federal Insecticide, Fungicide and Rodenticide Act and bears a USEPA-approval label. The label states that the herbicide is toxic to fish and wildlife, should be kept out of lakes, streams, or ponds, and should not be applied to drainage areas where runoff or flooding will contaminate other bodies of water. The use of Magnacide is toxic to aquatic life for its intended use in the ACID canal. Non-target plants and aquatic life in the treatment area may be impacted. The Order prohibits the discharge of any chemical herbicide or other toxic materials into live streams, lakes, or ponds utilized as domestic water sources or which are fish-bearing waters. The ACID applies Magnacide during early summer, and implements best management practices to ensure that no overflows to natural waterways occur. Treated waters are conveyed along the canal and discharged to pastures and fields. As a result of the Magnacide treatments, resident aquatic life is

generally only present in the ACID canal on an intermittent basis, with aquatic species populations reestablishing each year at some point after the canal is treated. Furthermore, the only connection (other than the Sacramento River upstream diversion point) to natural waterways occurs during winter overflows.

The effluent from the Discharger's facilities includes thermal waste. The Discharger estimates discharge from the Lassen facility may be 96°F in the summer and 90°F in the winter. Upstream receiving water temperatures are estimated to be 57°F in the summer. Since flow in the ACID canal is intermittent in the winter, no temperature estimate has been made. These estimates suggest that downstream receiving water temperature observations may exceed upstream observations by greater than 5°F.

The Basin Plan states that: "At no time shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature". The Basin Plan further states: "In determining compliance with the water quality objectives for temperature, appropriate averaging periods may be applied provided that beneficial uses will be fully protected". This Order and the previous Order include a receiving water limitation for temperature that implements the Basin Plan limitation.

The Discharger conducted a study, submitted in July 2004, that demonstrated that any receiving water temperature exceedances were limited to a section of the ACID canal between the point of discharge into the canal, and the nearest downstream natural receiving water. Specifically, Schmeider Gulch is located approximately 2.75 miles downstream, and is the first point of possible overflow from the ACID canal, downstream of the discharge.

For compliance determination purposes, a sample collected from the ACID canal at the point of potential overflow to Schmeider Gulch (designated as RSW-003 in this Order) shall be used to compare to an ACID canal sample collected upstream (designated as RSW-001 in this Order) of the D-001 discharge location, to determine if the receiving water temperature limitation has been exceeded. This methodology effectively grants a mixing zone for temperature in the ACID canal. Based on the facts presented above, this methodology is justified, and appropriate.

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(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes "pollution".

Bioaccumulative pollutants are 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*) 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) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

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

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 include~~d~~, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are 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) means 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 is 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) 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) 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 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) are those sample results less than the laboratory's MDL.

Ocean Waters are 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 are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (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 Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

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) 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 is 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 is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

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

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

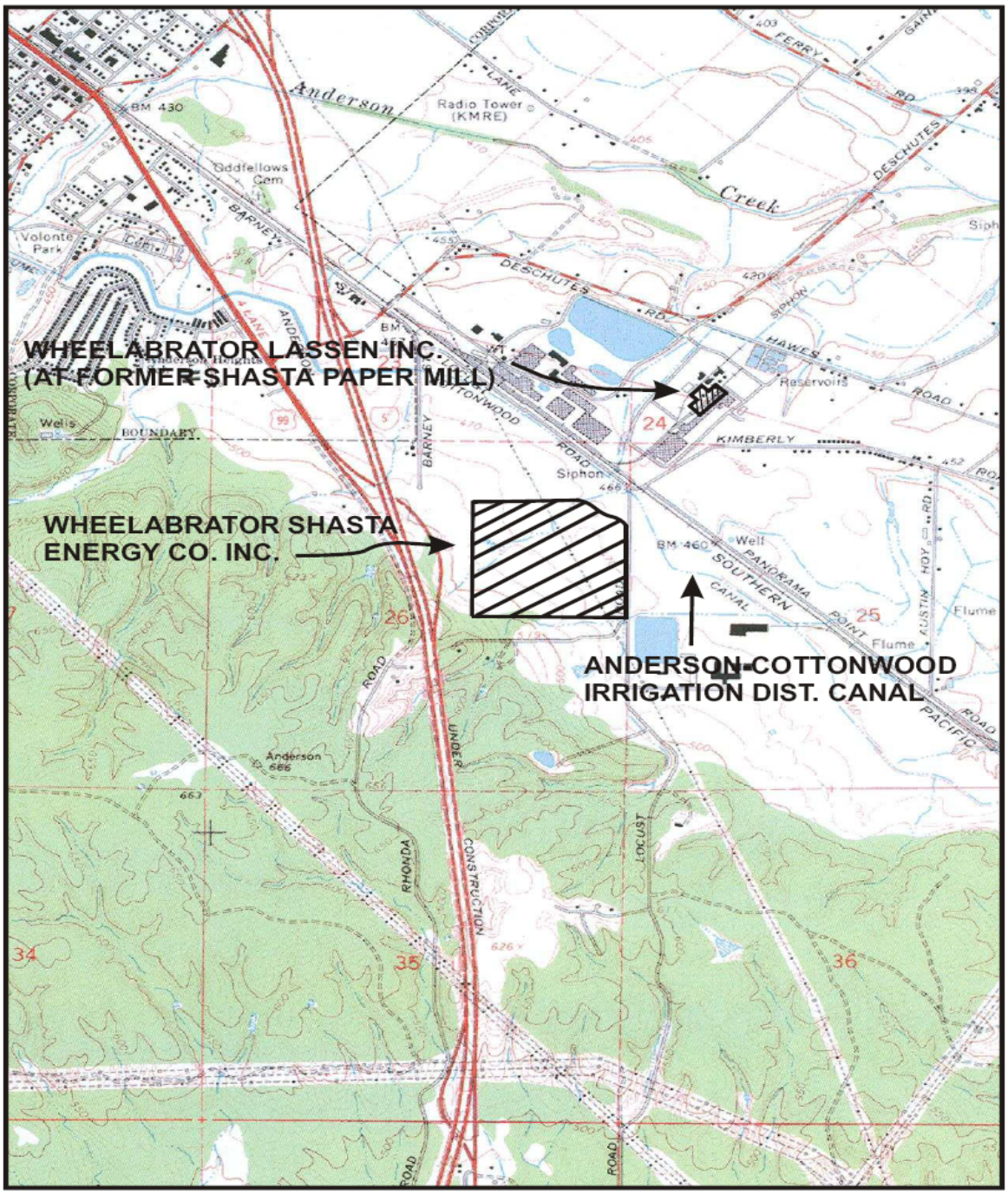
where:

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

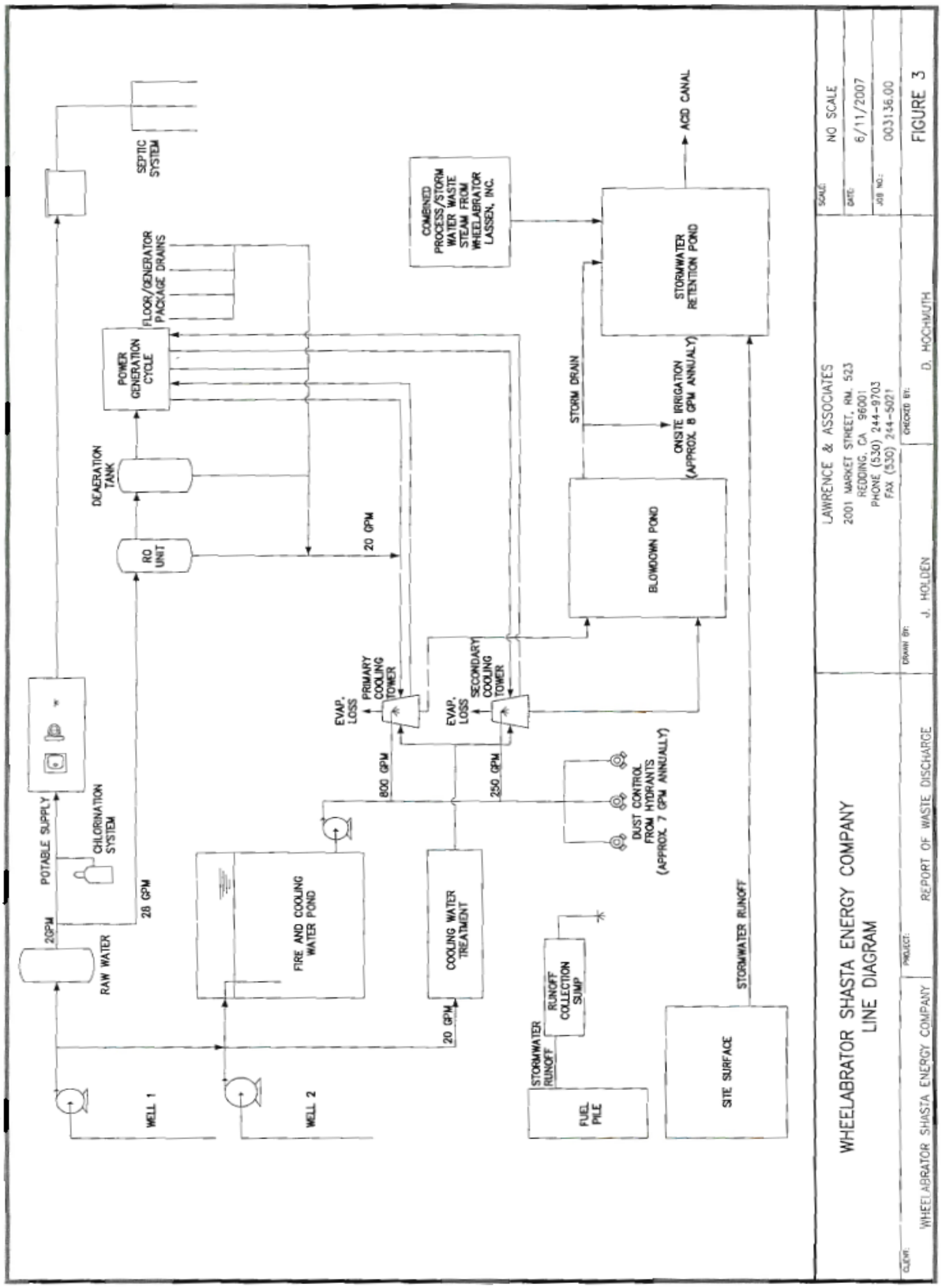
Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity.

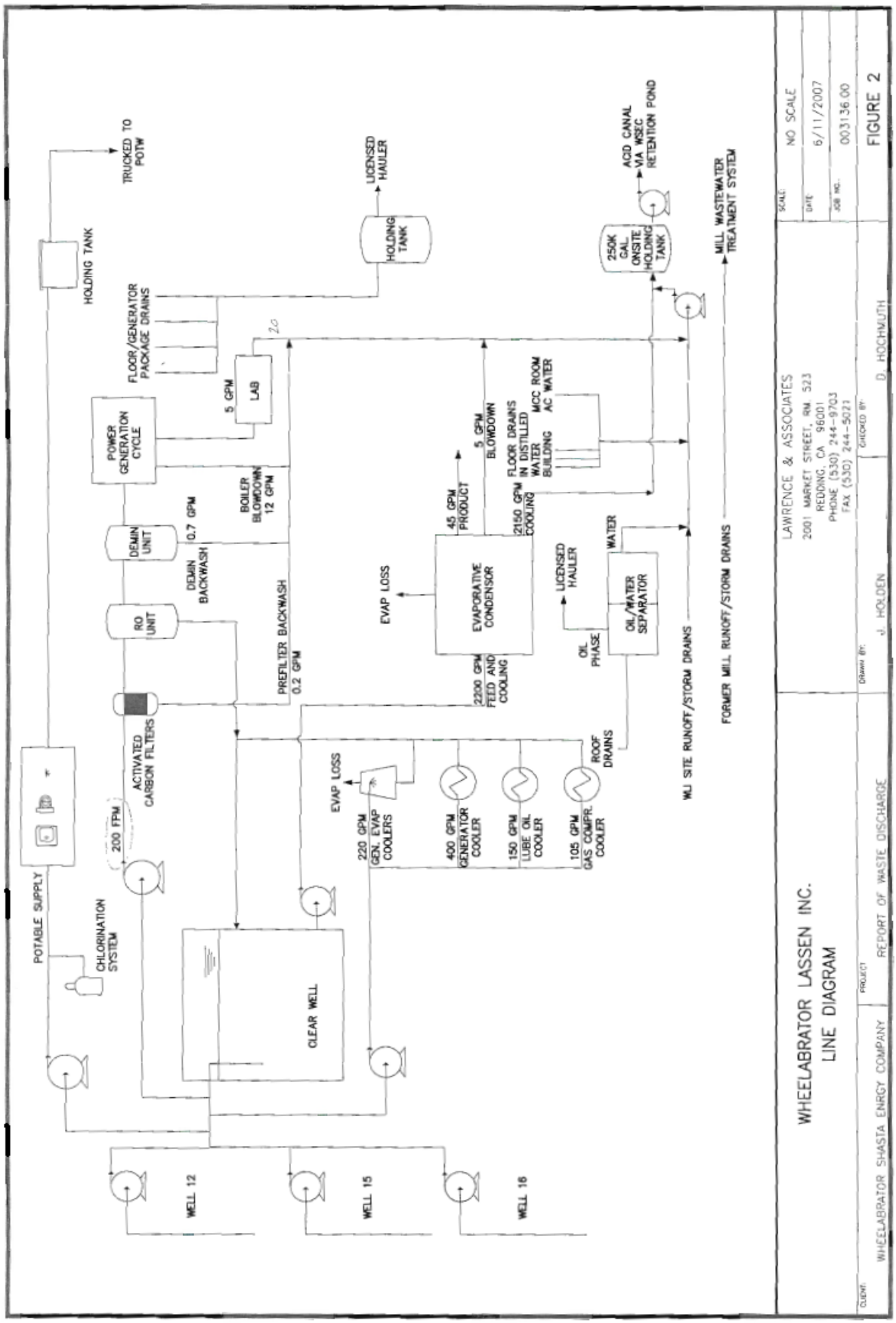
The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, 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 U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *Photorevised* *Not to scale*	SECTIONS 24 and 26, T30N, R4W, MDB&M WHEELABRATOR SHASTA ENERGY COMPANY, INC. AND WHEELABRATOR LASSEN, INC., SHASTA COUNTY	N W E S


WELL 1
WELL 2
RAW WATER
20GPM
28 GPM
POTABLE SUPPLY
CHLORINATION SYSTEM
SEPTIC SYSTEM
RO UNIT
DEAERATION TANK
FLOOR/GENERATOR PACKAGE DRAINS
POWER GENERATION CYCLE
20 GPM
FIRE AND COOLING WATER POND
COOLING WATER TREATMENT
20 GPM
EVAP. LOSS
PRIMARY COOLING TOWER
800 GPM
EVAP. LOSS
SECONDARY COOLING TOWER
250 GPM
COMBINED PROCESS/STORM WATER WASTE STEAM FROM WHEELABRATOR LASSEN, INC.
STORM DRAIN
BLOWDOWN POND
ONSITE IRRIGATION (APPROX. 8 GPM ANNUALY)
DUST CONTROL FROM HYDRANTS (APPROX. 7 GPM ANNUALLY)
STORMWATER RETENTION POND
ACID CANAL
STORMWATER RUNOFF
SITE SURFACE
STORMWATER RUNOFF
RUNOFF COLLECTION SUMP
FUEL PILE
WHEELABRATOR SHASTA ENERGY COMPANY
LINE DIAGRAM
LAWRENCE & ASSOCIATES
2001 MARKET STREET, RM. 523
REDDING, CA 96001
PHONE (530) 244-9703
FAX (530) 244-5021
SCALE: NO SCALE
DATE: 6/11/2007
JOB NO.: 003136.00
FIGURE 3
DRAWN BY: J. HOLDEN
CHECKED BY: D. HOCHMUTH
CLIENT: WHEELABRATOR SHASTA ENERGY COMPANY
PROJECT: REPORT OF WASTE DISCHARGE


WHEELABRATOR LASSEN INC.
LINE DIAGRAM
LAWRENCE & ASSOCIATES
2001 MARKET STREET, RM. 523
REDDING, CA 96001
PHONE (530) 244-9703
FAX (530) 244-5021
SCALE: NO SCALE
DATE: 6/11/2007
JOB NO.: 003136.00
FIGURE 2
CLIENT: WHEELABRATOR SHASTA ENRGY COMPANY
PROJECT: REPORT OF WASTE DISCHARGE
Drawn By: J. HOLDEN
Checked By: D. HOCHMUTH
TRUCKED TO POTW
HOLDING TANK
LICENSED HAULER
HOLDING TANK
ACID CANAL VIA WSEC RETENTION POND
250K GAL ONSITE HOLDING TANK
MILL WASTEWATER TREATMENT SYSTEM
FLOOR/GENERATOR PACKAGE DRAINS
5 GPM
LAB
POWER GENERATION CYCLE
BOILER BLOWDOWN 12 GPM
DEMIN UNIT
0.7 GPM
DEMIN BACKWASH
RO UNIT
PREFILTER BACKWASH 0.2 GPM
ACTIVATED CARBON FILTERS
200 FPM
POTABLE SUPPLY
CHLORINATION SYSTEM
CLEAR WELL
WELL 12
WELL 15
WELL 16
EVAP LOSS
EVAPORATIVE CONDENSOR
45 GPM PRODUCT
5 GPM BLOWDOWN
2150 GPM COOLING
2200 GPM FEED AND COOLING
FLOOR DRAINS IN DISTILLED WATER BUILDING
MCC ROOM AC WATER
LICENSED HAULER
OIL PHASE
WATER
OIL/WATER SEPARATOR
ROOF DRAINS
WLI SITE RUNOFF/STORM DRAINS
FORMER MILL RUNOFF/STORM DRAINS
EVAP LOSS
220 GPM GEN. EVAP COOLERS
400 GPM GENERATOR COOLER
150 GPM LUBE OIL COOLER
105 GPM GAS COMPR. COOLER

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 and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or denial of a permit renewal application. (40 C.F.R. § 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 C.F.R. § 122.41(a)(1))

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

The Discharger shall allow the 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 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(m)(1)(i))

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

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

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

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

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

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

4. The 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 C.F.R. § 122.41(m)(4)(ii))

5. Notice

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

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

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2))

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the 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 Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

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

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv))

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 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 C.F.R. § 122.41(j)(2))

B. Records of monitoring information shall include:

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

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi))

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

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2))

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the 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 C.F.R. § 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 C.F.R. § 122.41(k))

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

3. All reports required by this Order and other information requested by the 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 C.F.R. § 122.22(b)(1));

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative

may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.22(d))

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(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 C.F.R. § 122.41(l)(4)(i))

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in 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 C.F.R. § 122.41(l)(4)(ii))

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii))

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

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

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

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

3. The 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 C.F.R. § 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 C.F.R. § 122.41(l)(1)):

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

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

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

G. Anticipated Noncompliance

The Discharger shall give advance notice to the 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 C.F.R. § 122.41(l)(2))

H. Other Noncompliance

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

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 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 Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

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

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv))

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (CFR) section 122.48 (40 CFR122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

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

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

C. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

D. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. Laboratories that perform sample analyses shall be identified in all monitoring reports.

E. 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 to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

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

G. 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.

H. 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.

I. 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.

J. 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 the Retention Pond (includes waste water and storm water from the Lassen facility) Latitude 40° 25’ 49” N and Longitude 122° 16’ 32” W
D-003	EFF-003	Outfall from the Shasta facility “westerly under drain” system Latitude 40° 25’ 49” N and Longitude 122° 16’ 32” W.
IW-Shasta (D-002)	EFF-002	Outfall from internal under drain (IW-Shasta) and Blowdown Pond to the Retention Pond.
IW-Lassen	IW-Lassen	Outfall from Lassen facility (IW-Lassen) to the Retention Pond.
Blowdown Pond	PND-001	
Fire and Cooling Water Pond	PND-002	
Retention Pond	PND-003	2.8-acre Unlined Retention Pond. East side of Wheelabrator Shasta Facility
	RSW-001	Anderson Cottonwood Irrigation District Canal, approximately 50’ above discharge location
	RSW-002	Anderson Cottonwood Irrigation District Canal, approximately 50’ below discharge location
	RSW-003	Confluence/potential overflow point of the ACID canal into Schmeider Gulch

III. INFLUENT MONITORING REQUIREMENTS - NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor the outfall from the retention pond at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-2. Effluent Monitoring Location (EFF-001)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Estimated Flow	gal/day	Visual	Daily	
Temperature	^{o}F	Grab	Weekly	
Chlorine	mg/L	Grab	Weekly	
Chloride	mg/L	Grab	Weekly	
Electrical Conductivity @ 25°C	umhos/cm	Grab	Weekly	
pH	Units	Grab	Weekly	
Settleable Solids	mL/L	Grab	Weekly	
Total Dissolved Solids	mg/L	Grab	Weekly	
Fecal Coliform	MPN[1]/100 ml	Grab	Monthly[10]	
Total Coliform	MPN[1]/100 ml	Grab	Monthly[10]	
Sulfate	mg/L	Grab	Monthly	
Turbidity	NTU	Grab	Monthly[2]	
Aluminum	ug/L	Grab	Quarterly[3]	
Arsenic	ug/L	Grab	Quarterly[3]	
Iron	ug/L	Grab	Quarterly[3]	
Manganese	ug/L	Grab	Quarterly[3]	
Molybdenum	ug/L	Grab	Quarterly[3]	
Vanadium	ug/L	Grab	Quarterly[3]	
COD	mg/L	Grab	Semi-Annually[4]	
Oil & Grease	mg/L	Grab	Semi-Annually[4]	
Tannins & Lignins	mg/L	Grab	Semi-Annually[4]	
Total Suspended Solids	mg/L	Grab	Semi-Annually[4]	
General Minerals	mg/L	Grab	Annually[7]	
Priority Pollutant Metals[5,6]	ug/L	Grab	Annually[7]	
Acute Toxicity	% Survival	Grab	Bi-Annually	
Chronic Toxicity	% Survival	Grab	Bi-Annually	
Priority Pollutants [2,8,9]	ug/L	Grab	Bi-annually	

(1) Most probable number, if sample results are > 1,600 use 25 tube fermentation technique.
(2) During April through October, when water is diverted into the ACID canal for irrigation.
(3) Twice from April through October, when water is diverted into the ACID canal for irrigation and twice during storm water runoff (November through March), when there is upstream flow in the ACID canal.

(4) Samples shall be collected during the first hour of the first storm water discharge after the dry season and once thereafter during the wet season.
(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) Antimony, arsenic, beryllium, cadmium, chromium III, chromium IV, copper, lead, mercury (EPA Method 1669/1631), nickel, selenium, silver, thallium, zinc, and cyanide.
(7) Once, from April through October, when water is diverted into the ACID canal for irrigation.
(8) Priority Pollutants – one set during 1st 2-years of the permit, and one set during the 2nd 2-years of the permit.
(9) 126 Priority Pollutants except asbestos.
(10) Sampling for fecal and total coliform may be discontinued after six months following the completion and successful operation of the septic system improvements.

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 **bi-annual** acute toxicity testing.

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-001.

3. *Test Species* – Test species shall be rainbow trout (*Oncorhychus 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 **bi-annual** three species chronic toxicity testing.

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-001 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* – The chronic toxicity testing shall be performed using 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest 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).

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 Provisions VI.C.2.c.iii)

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

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 $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, 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 TRE. (Note: items a through c, above, are only required when testing is performed using the full dilution series.)

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 Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS

1. **Domestic Waste Disinfection and Dechlorination System**
   The Discharger shall inspect the Shasta facility domestic waste treatment system monthly. The system shall be inspected and sampled on a regular basis. The following shall constitute the monitoring program for the domestic waste treatment system. Samples shall be collected at a point after dechlorination. These results shall be submitted with the monthly monitoring report.

Table E-4. Domestic Waste Disinfection and Dechlorination System.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Total Coliform	MPN/100mL	Grab	Monthly	
Fecal Coliform	MPN/100mL	Grab	Monthly	
Residual Chlorine	--	Grab	Monthly	

2. **Leachfield Monitoring (Piezometers P-1 through P-11)**

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

Table E-5. Leachfield Monitoring Requirements

Parameter	Units	Station	Minimum Sampling Frequency
Depth to Water	feet, inches	Piezometers	Monthly
Gradient	--	Piezometers	Monthly
Groundwater Flow Direction	--	Piezometers	Monthly

3. **Groundwater Monitoring Wells MW-4, MW-5, and MW-6**
   Groundwater monitoring wells MW-4, MW-5, and MW-6 at the Shasta facility shall be inspected and sampled on a regular basis. The following shall constitute the monitoring program for the monitoring wells. The results shall be submitted with the monthly monitoring report.

Table E-6. Groundwater Monitoring Requirements

Constituent	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Groundwater elevation	Feet & 100th, MSL	Grab	Quarterly 1st year, Semi-annually thereafter	
Temperature	Degrees C	Grab		
Electrical Conductivity	umhos/cm	Grab		
pH	pH Units	Grab		
Turbidity	mg/L	Grab		
Chloride	mg/L	Grab		EPA 300.0
Nitrate (as N)	mg/L	Grab		EPA353.1
Sulfate	mg/L	Grab		EPA6010
Tannins & lignins	mg/L	Grab		
Total Dissolved Solids	mg/L	Grab		EPA 160.1
Organics[1]	ug/L	Grab	Quarterly 1st year, Every 5 years thereafter	EPA 8270
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	Quarterly 1st year, bi-annually thereafter	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, manganese, and zinc.

VII. RECLAMATION MONITORING REQUIREMENTS - NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. The Discharger shall monitor the Anderson Cottonwood Irrigation District Canal at RSW-001 and RSW-002 as follows:

Table E-7. 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	gal/min	Visual	Monthly	
Temperature[10]	^{o}F	Grab	Monthly[1]	
pH	units	Grab	Monthly[2]; Semi-Annually[3]	
Turbidity	NTU	Grab	Monthly[2]; Semi-Annually[3]	
Fecal Coliform	MPN[1]/100 ml	Grab	Monthly[2, 9];	
Total Coliform	MPN[1]/100 ml	Grab	Monthly[2, 9]	
Electrical Conductivity @ 25°C	umhos/cm	Grab	Monthly[2, 9]	
Total Dissolved Soids	mg/L	Grab	Quarterly[4]	
Aluminum	ug/L	Grab	Quarterly[4]	
Arsenic	ug/L	Grab	Quarterly[4]	
Iron	ug/L	Grab	Quarterly[4]	
Manganese	ug/L	Grab	Quarterly[4]	
Priority Pollutant Metals [5, 6]	ug/L	Grab	Annually	
Priority Pollutants [2, 7, 8] (RSW-001 Only)	ug/L	Grab	Bi-annually	

(1) Additional upstream and downstream sampling locations representative of irrigation and non-irrigation periods of operations.
(2) During April through October, when water is diverted into the ACID canal for irrigation.
(3) During storm water runoff (November through March), when there is upstream flow in the ACID canal.
(4) Twice, from April through October, when water is diverted into the ACID canal for irrigation and twice during storm water runoff (November through March), when there is upstream flow in the ACID canal.
(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) Antimony, arsenic, beryllium, cadmium, chromium III, chromium VI, copper, lead, mercury (EPA Method 1669/1631), nickel, selenium, silver, thallium, zinc, and cyanide.
(7) Priority Pollutants – one set during 1st 2-years of the permit, and one set during the 2nd 2-years of the permit.
(8) 126 Priority Pollutants except asbestos.
(9) Sampling for fecal and total coliform may be discontinued after six months following the completion and successful operation of the septic system improvements.
(10) Also to be collected at RSW-003

B. The Discharger shall monitor the Anderson Cottonwood Irrigation District Canal at monitoring locations RSW-001 and RSW-002 during periods of discharge from D-001. Attention shall be given to the visual appearance of the Anderson Cottonwood Irrigation District Canal. Visual observations shall document the presence or absence of:

a. Upstream Flow
b. Floating or suspended matter
c. Oil sheen or slick
c. Discoloration
e. Scum or foam
d. Bottom deposits
e. Aquatic life
f. Bark or sawdust

IX. OTHER MONITORING REQUIREMENTS

A. Precipitation Monitoring

The daily precipitation at the Wheelabrator Shasta Energy Company, Inc. facility shall be recorded on weekdays and weekends. The reading shall be taken at the same time each day and submitted as follows:

Table E-8. Precipitation Monitoring Requirements

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

B. Water Supply Monitoring.

Samples shall be collected from all Shasta facility and Lassen facility supply wells, analyzed and reported in accordance with the standards provided by the Shasta County Department of Resource Management, Environmental Health Division. A report of water supply monitoring shall be submitted with the monthly monitoring report.

C. Aboveground Petroleum Storage Monitoring

The Discharger shall visually inspect the aboveground petroleum storage tanks at the Shasta and Lassen facilities, 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.

D. Shasta Facility Monitoring

1. The blowdown pond and fire/cooling water pond at the Shasta facility shall be inspected on a regular basis to check or liner failure and/or leakage. The following shall constitute the monitoring program for the blowdown pond and fire/cooling water pond. The results shall be submitted with the monthly monitoring report.

Table E-9. Blowdown Pond and Fire/Cooling Water Pond Monitoring Requirements.

Constituent	Units	Type of Sample	Sampling Frequency
Freeboard Depth	Feet, inches	Visual	Weekly
Flow pumped from Leachate Sumps to Ponds	gpd	Cumulative	Daily
Dissolved Oxygen	mg/L	grab	Monthly

2. **Blowdown Pond** (Shasta Facility Landscape Irrigation Wastewater)

   When wastewater from the blowdown pond at the Shasta facility is being supplied to the Shasta facility's landscape irrigation system, representative samples shall be collected of the water in accordance with the following. The results shall be submitted with the monthly monitoring report.

Table E-10. Shasta Facility Landscape Irrigation Wastewater Monitoring Requirements (Blowdown Pond)

Parameters	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	gpd	Cumulative	Daily	
Chloride	mg/L	Grab	Monthly	
Dissolved Oxygen	mg/L	Grab	Monthly	
pH	units	Grab	Monthly	
Sulfate	mg/L	Grab	Monthly	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Monthly	
Arsenic	µg/L	Grab	Quarterly	
Manganese	µg/L	Grab	Quarterly	
Molybdenum	µg/L	Grab	Quarterly	
Vanadium	µg/L	Grab	Quarterly	
General Minerals[1]	mg/L	Grab	Annually	

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

3. **Shasta Facility Under Drain System Monitoring** (IW-Shasta (D-002) and Discharge Point D-003)

   When flows are occurring, the point where groundwater from the facility under drain system discharges into the retention pond (IW-Shasta) and the ACID canal (Discharge Point D-003) shall be monitored for the following. The results shall be submitted with the monthly monitoring report.

Table E-11. Shasta Facility Under Drain System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Estimated Flow	gpd	Cumulative	Daily	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Monthly	
pH	Units	Grab	Monthly	
Total Coliform	MPN[1]/100mL	Grab	Monthly[3]	
Fecal Coliform	MPN[1]/100mL	Grab	Monthly[3]	
General Minerals[2]	mg/L	Grab	Annually	

(1) Most probable number, if sample results are >1600 use 25 tube fermentation technique.
(2) General minerals include: bicarbonate, carbonate, calcium, chloride, magnesium, nitrate, potassium, silica, sodium and sulfate.
(3) Sampling for fecal and total coliform may be discontinued after six months following the completion and successful operation of the septic system improvements.

4. **Ash monitoring at the Shasta Facility**

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. The frequency of log entries is discretionary; however, the log should be complete enough to serve as a basis for an annual report. A representative composite sample of the fly ash shall be tested annually 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, with deionized water for the extraction solvent. The distilled water 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-12. Ash Monitoring Requirements

Parameter	Units	Sample TYPE	Minimum Sampling Frequency
pH	units	Composite	Annually
Electrical Conductivity	umhos/cm	Composite	Annually
Total Dissolved Solids	mg/L	Composite	Annually
Aluminum	mg/kg; µg/L	Composite	Annually
Barium	mg/kg; µg/L	Composite	Annually
Boron	mg/kg; µg/L	Composite	Annually
Cobalt	mg/kg; µg/L	Composite	Annually
Iron	mg/kg; µg/L	Composite	Annually
Manganese	mg/kg; µg/L	Composite	Annually
Molybdenum	mg/kg; µg/L	Composite	Annually
Vanadium	mg/kg; µg/L	Composite	Annually
General Minerals[1]	mg/kg; mg/L	Composite	Annually
Priority Pollutant Metals[2]	mg/kg; µg/L	Composite	Annually
2,3,7,8-TCDD and congeners[3]	pg/g; pg/L	Composite	Annually

(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

E. Lassen Facility Monitoring

1. **Lassen Facility Internal Waste Sources Monitoring Requirements**

Metal cleaning wastewater and low volume waste sources shall be individually sampled. Low volume waste sources include but are not limited to: ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower cleaning wastes, and recirculating water systems.

Table E-13. Lassen Facility Internal Waste Monitoring Requirements

Parameter	Units	Type of Sample	Minimum Sampling Frequency
Chlorine, total residual	mg/L	Grab	Annually
Chlorine, free available	mg/L	Grab	Annually
Oil and Grease	mg/L	Grab	Annually
pH	pH Units	Grab	Annually
Total Suspended Solids	mg/L	Grab	Annually
Chromium, total	mg/L	Grab	Annually
Copper, total	mg/L	Grab	Annually
Iron, total	mg/L	Grab	Annually
Zinc, total	mg/L	Grab	Annually
126 Priority Pollutants	ug/L	Grab	Annually

2. **Lassen Facility Discharge to Shasta Facility Retention Pond Monitoring Requirements**

Lassen facility discharge samples shall be collected at the point of discharge to the retention pond (IW-Lassen). The results shall be submitted with the monthly monitoring report and include the following:

Table E-14. Lassen Facility Discharge to Retention Pond Monitoring Requirements

Constituent	Unit	Type of Sample	Minimum Sampling Frequency
Estimated Flow	gpd	Continuous	Daily
Temperature	^{o}F	Grab	Weekly
Chlorine	mg/L	Grab	Weekly
Specific Conductance	µmhos/cm	Grab	Weekly
Total Dissolved Solids	mg/L	Grab	Weekly
pH	Units	Grab	Weekly
Iron	µg/L	Grab	Semi-Annually[1]
COD	mg/L	Grab	Semi-Annually[1]
Oil and Grease	mg/L	Grab	Semi-Annually[1]
Total Suspended Solids	mg/L	Grab	Semi-Annually[1]
Tannins & Lignins	mg/L	Grab	Semi-Annually[1]
Turbidity	NTU	Grab	Semi-Annually[1]
Polychlorinated Biphenols	mg/L	Grab	Annually[2]
General Minerals[3]	mg/L	Grab	Annually[2]
Priority Pollutant Inorganics, SVOCs and VOCs	mg/L	Grab	Annually[2]

(1) Samples shall be collected during the first hour of the first storm water discharge after the dry season and once thereafter during the wet season.
(2) Annually, once between April through October, when water is diverted into the ACID canal.
(3) General minerals include: bicarbonate, carbonate, calcium, chloride, magnesium, nitrate, potassium, silica, sodium and sulfate.

3. **Lassen Facility Industrial Storm Water**

Annual inspections of the Lassen facility shall be conducted to identify areas contributing to offsite storm water discharge, and to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly implemented or whether additional control measures are needed. An annual report of the findings shall be submitted by **1 July** of each year with certification that the facility is in compliance with its SWPPP.

Visual inspections for presences of non-storm water discharges shall be conducted no less than twice during the dry season (May to September) at all storm water discharge locations. A report of the findings shall be submitted with the annual report.

Samples shall be collected during two rain events during the wet season (1 October to 30 April). Storm water samples shall be collected downstream from the last connection through which storm water leaves the Lassen facility.

The following shall constitute the storm water monitoring program for each off-site discharge location:

Table E-15. Lassen Facility Industrial Storm Water Monitoring Requirements

Parameter	Unit	Sample Type	Minimum Sampling Frequency[1]
pH	pH Units	Grab	Twice[2]
Total Suspended Solids	Mg/L	Composite	Twice[2]
Electrical Conductivity @ 25°C	umhos/cm	Grab	Twice[2]
Iron	mg/L	Grab	Twice[2]
Oil and Grease	mg/L	Grab	Twice[2]

(1) If after two years of sampling, if pollutants are not measured above industrial storm benchmarks, sampling requirements may be reduced or discontinued with written approval of the Executive Officer.
(2) Samples shall be collected during the first hour of the storm water discharge after the dry season and once thereafter during the wet season.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing

compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

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

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or 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-16. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**Permit effective date**	**All**	**Submit with monthly SMR**
Hourly	**Permit effective date**	**Hourly**	**Submit with monthly SMR**
Daily	**Permit effective date**	**(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.**	**Submit with monthly SMR**
Weekly	**Sunday following permit effective date or on permit effective date if on a Sunday**	**Sunday through Saturday**	**Submit with monthly SMR**
Monthly	**First day of calendar month following permit effective date or on permit effective date if that date is first day of the month**	**1st day of calendar month through last day of calendar month**	**First day of the second month following month of sampling**
Quarterly	**Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date**	**January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31**	**May 1 August 1 November 1 February 1**
Semi-annually	**Closest of January 1 or July 1 following (or on) permit effective date**	**January 1 through June 30 July 1 through December 31**	**August 1 February 1**
Annually	**January 1 following (or on) permit effective date**	**January 1 through December 31**	**February 1**
Bi-annually	**January 1 following (or on) permit effective date**	**1st two years of permit, and 2nd two years of permit**	**February 1**

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

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

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

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

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

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

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

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

5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

6. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

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

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

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

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

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

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

C. Discharge Monitoring Reports (DMRs) - Not Applicable

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

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

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

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

D. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI, 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. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the SIP.

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

   d. 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 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	5A452033001
Discharger	Wheelabrator Shasta Energy Company Inc. and Wheelabrator Lassen Inc.
Name of Facility	Wheelabrator Shasta Energy Company Inc. and Wheelabrator Lassen Inc.
Facility Address	20811 Industry Road
	Anderson, CA 96007
	Shasta County
Facility Contact, Title and Phone	Rodney Mortensen, Facility Manager (530) 339-7600 Teri Ard, Manager Environmental Health & Safety (530) 339-7627
Authorized Person to Sign and Submit Reports	Rodney Mortensen, Facility Manager (530) 339-7600 Teri Ard, Manager Environmental Health & Safety (530) 339-7627
Mailing Address	20811 Industry Road, Anderson, CA 96007
Billing Address	P.O. Box 7000, Anderson, CA 96007
Type of Facility	4911 – Electrical Generation
Major or Minor Facility	Minor
Threat to Water Quality	1
Complexity	B
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	Anderson Cottonwood Irrigation District Canal
Receiving Water Type	Inland Surface Water

A. This Order covers two power-generating facilities south of the City of Anderson in Shasta County, Sections 24 and 26, T30N, R4W, MDB&M, as shown on Attachment B. Wheelabrator Shasta Energy Company, Inc. and Wheelabrator Lassen, Inc. are separate operating companies (hereinafter jointly referred to as "Discharger"). The Shasta facility is owned and operated by Wheelabrator Shasta Energy Company, Inc., and the Lassen facility is owned and operated by Wheelabrator Lassen, Inc. The 54-megawatt (MW) Shasta facility is a wood-burning power plant and the 48.5-MW Lassen facility is fired by natural gas.

The terms and conditions of the current NPDES permit have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.

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. Both facilities discharge process water to the Anderson Cottonwood Irrigation District (ACID) canal, a tributary of Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, tributaries of Cottonwood Creek, a water of the United States, and is currently regulated by Order No. R5-2003-0013 and National Pollutant Discharge Elimination System (NPDES) permit No. CA0081957, which was adopted on 31 January 2003. Under order R5-2003-0013 (NPDES No. CA0081957), process water from both facilities has been discharged to an on site retention pond, which then discharged to the ACID canal. The Shasta facility discharges cooling tower blowdown, boiler blowdown, reject water from a reverse osmosis system, fuel storage pile leachate, groundwater from underdrain systems, and storm water runoff to the retention pond. The Lassen facility discharges blowdown water, cooling water, plant maintenance water, and limited storm water to the retention pond. The discharger has installed a discharge header to dissipate thermal energy (heat) from the Lassen facility prior to discharge to the retention pond.

C. The Discharger filed a Report of Waste Discharge (RWD) and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and NPDES permit on 20 June 2007. The application was deemed complete on 3 July 2007. A site visit was conducted on 1 May 2008, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

A. Wheelabrator Shasta Facility

Wheelabrator Shasta Energy Company, Inc., a Delaware Corporation, (hereafter Discharger) owns and operates a 54-megawatt wood-fired electrical generation facility south of the city of Anderson in Sections 26, T30N, R4W, MDB&M, as shown on Attachment B. The Shasta facility is on a 77-acre site (Assessor's Parcel Numbers 090-360-033 and 090-360-037) with surface drainage to the ACID canal, a tributary to Cottonwood Creek.

The Discharger has biomass storage areas, two truck scales, three platform truck dumpers, a hydraulic log loader, hammer hog with scalpers and conveyors, V-drum chipper, fuel dumping and metering bins, chip bins infeed/offload conveyors, one 50-foot high stacker with 1,100 foot long overpile reclaimers, three boilers each producing 190,000 lb/hr of steam, three ash re-injection systems, three multicyclone collectors, three electrostatic precipitators, three ammonia injection NOX control systems, four turbine generators, two multi-cell evaporator cooling towers, an electrical switch yard, secondary contained aboveground petroleum and hazardous materials storage areas, underground petroleum storage, water treatment chemical storage and use, equipment fueling and maintenance areas, paved and unpaved roadways, three wells, a laboratory, two wastewater ponds, a fire and cooling water pond, a septic tank leachfield system, and an office (see Attachment C-1).

A conveyance pipeline was installed between the Discharger and Shasta Paper Company for delivering approximately 45,000-50,000 lb/hr of steam to the Shasta Paper Company for use at their facility. That steam pipe has since been converted to convey process water from the Lassen facility to the Shasta facility's retention pond, as mentioned previously and discussed later in further detail.

The Shasta facility's wastes include: cooling tower blowdown, boiler blowdown, reject water from the reverse osmosis system, fuel storage pile leachate, fly ash, bottom ash, waste petroleum products, sewage, groundwater from the under drain systems, and storm water runoff.

Preliminary groundwater investigations at the Shasta facility site encountered perched groundwater at depths of one to six feet below ground surface. In 1986, during facility construction, under drain systems were installed to dewater the site. The "westerly" under drain intercepts shallow groundwater upgradient of the Shasta facility and discharges it to the ACID canal at discharge point D-003. The "internal" under drain system removes shallow groundwater from within the Shasta facility (IW-Shasta) and discharges it to the retention pond at discharge point D-002.

1. **Shasta Facility Operations**
   The fire/cooling water pond is used for the firewater system pumps, primary and secondary cooling towers, and soft blowdown tanks. The fire/cooling water pond is lined with a 36-mil synthetic plastic. The high purity water system consists of three reverse osmosis treatment units that treat groundwater for use in the boilers. Reject water from reverse osmosis treatment is disposed of in the primary and secondary cooling towers. Water use at the Shasta facility is is presented in Attachment D.

   Blowdown from the boilers discharges to the turbine hall sump where it combines with pumped groundwater prior to entering the primary cooling tower. The blowdown pond receives wastewater from the primary and secondary cooling towers. The blowdown pond is lined with a 36-mil synthetic plastic. The blowdown pond's metered wastewater discharge continuously flows to either a retention pond or a landscape irrigation system.

The retention pond receives an average of 314,500 gallons per day (gpd) of wastewater from the blowdown pond, cooling tower blowdown, wastewater from plant maintenance, storm water runoff and groundwater from the internal under drain system (IW-Shasta). The retention pond continuously discharges to the ACID canal at discharge point D-001. In addition, a portion of the groundwater from the westerly under drain system bypasses the retention pond and directly discharges to the ACID canal at D-003. From approximately April through October, storm water discharges cease and the remaining wastewater mixes with the receiving water prior to being diverted to downstream users. The closest lateral is approximately ½ mile downstream of the discharge. The Discharger's January 2007 to December 2007 monitoring reports characterize discharge from D-001 as follows:

Table F-2. Discharge D-001 Characterization Summary

Constituent	Units	Range
Flow	gpd	541,500 to 3,700,000 (avg: 2,717,000)
Hardness	mg/L as $CaCO_3$	77 (minimum)
Chloride	mg/L	9.5 to 28.5
Fecal Coliform	MPN/100mL	<2 to >1,600
Total Coliform	MPN/100mL	<2 to >2,420
pH	units	7.58 to 8.50
Specific Conductance	umhos/cm	236 to 416
Total Dissolved Solids	mg/L	116 to 289
Settleable Solids	ml/L	<0.1
Iron	ug/L	<100 to 101
Manganese	ug/L	<2 to 5.7
Vanadium	ug/L	Not Detected
Arsenic, Aluminum, Molybdenum, Oil and Grease, Chemical Oxygen Demand, Total Suspended Solids, Tannins and Lignins		Not Detected
CTR Results:		10/5/2006 and 2/7/2007
Antimony	ug/L	0.03 to 0.040
Arsenic	ug/L	0.76 to 1.06
Berylium	ug/L	<0.020
Cadmium	ug/L	<0.02 to 0.051
Chromium (III)	ug/L	0.62 to 0.89
Chromium (VI)	ug/L	<2.0
Copper	ug/L	0.75 to 2.28
Lead	ug/L	0.021 to0.152
Mercury	ug/L	<0.020
Nickel	ug/L	<0.20 to 2.44
Selenium	ug/L	<0.50
Silver	ug/L	<0.005
Thallium	ug/L	<0.005 to 0.009
Zinc	ug/L	3.30 to 7.10
Cyanide	ug/L	<2.0
Asbestos	10^6 Fibers/L	N/A
2,3,7,8 TCDD	ug/L	0.0000009625
Remaining Priority Pollutants	ug/L	Not Detected

2. **Shasta Facility Water Supply**
Approximately 600 gallons per minute (gpm) of water is pumped from two groundwater wells into the fire protection/cooling water pond and blowdown pond. To reduce algal growths, the ponds are treated with chlorine at quantities necessary to maintain a residual of 0.2-0.5 parts per million (ppm). The well water is also pumped into a process water tank that supplies the high purity water system, plant water for facility maintenance, and water for potable uses.

The Discharger has installed three supply wells at the Shasta facility. The 220-foot well has reportedly been abandoned. The other two wells are in use. One well is installed to a depth of 503 feet below ground surface (bgs) and screened from 296 to 496 feet. The other well is installed to a depth of 508 feet bgs, and screened from-308 to 508 feet. The well logs indicate the surface soils generally consist of intermixed layers of gravelly clay, clay, gravel, and sandy clay. The log information for one well indicates the uppermost lithology consists of 5 to 12 feet of gravelly brown clay, 12 to 24 feet of yellow clay, 24 to 41 feet of gravel, 41 to 55 feet of sandy yellow clay, 55 to 72 feet of gravelly brown clay, 72 to 133 feet of gravel, and 133 to 172 feet of brown clay. The Shasta County Department of Resource Management, Environmental Health Division (SCEHD), regulates the Discharger's drinking water. The SCEHD has confirmed that constituents in the water supply do not exceed drinking water standards.

3. **Shasta Facility Chemical Use**
Throughout the Shasta facility, various chemicals are stored in secondary containment. The Discharger has submitted a list and Material Safety Data Sheets (MSDS) for the chemicals used to treat the Shasta facility's water and maintain the boilers and cooling towers. The chemicals include:

Table F-3. Shasta Facility Chemical Use.

Chemical Name	Usage/Purpose
Biosperse 250	Cooling Water Treatment Chemical
Biosperse 254	Cooling Water Treatment Chemical
Caustic Soda Liquid 25%	Boiler Water Treatment Chemical
Continuum AEC3145	Cooling Water Treatment Chemical
Cortrol OS5300	Boiler Water Treatment Chemical
GE Betz SF5101	Cooling Water Treatment Chemical
Inhibitor AZ8104	Cooling Water Treatment Chemical
Optisperse HP54405	Boiler Water Treatment Chemical
Sodium Bisulfite (20% - 40%)	Cooling Water Treatment Chemical
Sodium Hypochlorite (10% - 20%)	Cooling Water Treatment Chemical
Steamate 0560	Boiler Water Treatment Chemical
Vitec 4000NSF	Boiler Water Treatment Chemical

4. **Shasta Facility Fuel Sources**
The primary fuel source for the Discharger's power plant is biomass from off-site sources; natural gas is used as a supplementary fuel for startup and flame stabilization of the plant's boilers. The Shasta County Department of Resource Management Air Quality Management District (SCAQMD) permit specifies the type

of fuel used at the Shasta facility. The SCAQMD permit (#86-PO-08g) authorizes: mill waste; biomass fuel procured from private and public lands; agricultural residues such as almond and walnut shells and orchard prunings; hog fuel from eucalyptus or poplar plantations; land clearings from PG&E and public road right-of-ways or land development projects; wood waste comprised of tree tops, limbs, woody yard waste, and stumps; scrap lumber, pallets and crates from the general public; fuel cubes manufactured using mixed waste paper with paper mill pulp sludge; chipped creosote-treated wood products recycled from industrial use; scrapped waxed and non-waxed corrugated cardboard and wood-reinforced cardboard box material; and natural gas. The SCAQMD permit does not authorize wood products with chemical treatment other than creosote or wood waste from the general public that contains painted or chemically treated wood.

Cull logs including, but not limited to, cedar, pine, fir, and oak are decked along the east side of the Shasta facility. Water is not sprayed on the logs. Chipped wood waste is removed from trucks using the platform dumpers and conveyed to one of the two wood chip piles. Woody yard waste, agricultural waste and railroad ties are stored in piles adjacent to the north hog and chipper. Railroad ties are covered and stored in a lined area. Annually, the cogeneration plant consumes approximately 800,000 green tons of biomass fuel and a variable quantity of natural gas.

The Discharger's 2007 monitoring reports, characterize the wood fuel and railroad ties as follows:

Table F-4. Fuel Characterization

		Average		Minimum		Maximum	
Constituent	**Units**	**Railroad Ties**	**Wood Fuel**	**Railroad Ties**	**Wood Fuel**	**Railroad Ties**	**Wood Fuel**
Moisture	%	7.68	36.68	6.51	29.33	8.84	44.82
Sulfur	%	0.21	0.033	0.19	0.020	0.23	0.054

According to the California Department of Toxic Substances Control (DTSC), burning wood waste that is identified as hazardous waste is prohibited under Health and Safety Code Section 25143.1.5. DTSC also states that it is the generator's responsibility to determine whether their wood waste is hazardous under Federal and State Laws. Suppliers of creosote treated railroad ties perform Title 22 testing and self-certify their material as non-hazardous prior to shipment to the Discharger. The Discharger does not perform Title 22 testing of the railroad ties to verify the self-certification.

In 30 August 2001, DTSC sampled the Discharger's railroad ties, fly ash, and bottom ash and found them below hazardous levels. On 30 August 2001, the Department of Toxic Substances Control (DTSC) collected samples of the Discharger's railroad ties to determine if the fuel was hazardous waste. The pH of the samples averaged 5.24. Metals with detectable concentrations (average) included barium (45.7 mg/kg), cadmium (0.8 mg/kg), cobalt (2.6 mg/kg), chromium (4.6 mg/kg), copper (22.6 mg/kg), nickel (7.5 mg/kg), lead (22.1 mg/kg), vanadium (12.8 mg/kg), and zinc (62.0 mg/kg). Organic compounds with detectable concentrations

(average) included Acenapthylene (2,967 mg/kg), anthracene (1,233 mg/kg), benz(a) anthracene (663 mg/kg), benzo (a) pyrene(305 mg/kg), benzo (b) fluoranthene (700 mg/kg), chrysene (680 mg/kg), dibenzofuran (2,133 mg/kg), flurene (2,633 mg/kg), fluoranthene (2,900 mg/kg), naphthalene (3,350 mg/kg), phenanthrene (4,767 mg/kg), pyrene (2,367 mg/kg), 2-methylnaphthalene (1,860 mg/kg), and carbazole (480 mg/kg). DTSC determined the samples were non-hazardous.

5. **Shasta Facility Storm Water and Groundwater Considerations**
Paved surfaces and buildings comprise approximately 10 percent of the property. Fuel (biomass) and log storage areas occupy most of the remainder of the site. Storm water runoff from areas of industrial activity flows to the retention pond. The storm water runoff associated with areas where no industrial activities occur flows directly to the ACID canal via an under drain system. Within the under drain system, a portion of the storm water discharges to the retention pond at IW-Shasta while the remainder bypasses the retention pond and discharges directly through discharge point D-003.

   a. **Fuel Pile Leachate**
   Leachate from the fuel pile is pumped into two soft blowdown tanks. This wastewater is used for dust control and to quench fly ash, a waste product of combustion. When leachate is no longer available, the soft blowdown tanks are filled from the fire/cooling water pond. When excess leachate is generated, it is retained beneath the fuel pile by an earthen berm. Previously, fuel pile leachate was periodically pumped to the blowdown pond.

   b. **Ash**
   Annually, approximately 47,000 wet tons of fly ash is loaded directly into trailers and transported off-site for use as soil amendment. Bottom ash, comprised entirely of mineral matter (sand and gravel), is used for on-site and off-site road base and trench filling. Approximately 26,500 tons of bottom ash is generated annually and used off-site. At any given time approximately 3,000 tons of ash is stored on site south of the boilers, prior to disposition.

   Ash is monitored for specific minerals and priority pollutant metals. Characterization of the water-soluble portion of the fly ash based on Discharger's monitoring reports from December 2004 to December 2007 is provided below.

Table F-5. Fly Ash Characterization.

Constituent	Units	Average	Minimum	Maximum
pH	units	11.8	11.6	12.1
Chloride	mg/L	250	231	356
Sodium	mg/L	387	60.2	608
Sulfate	mg/L	313	213	477
Barium	mg/L	183	<0.05	480
Cadmium	μg/L		<0.05	<5
Chromium VI	μg/L	110	0.14	193
Lead	μg/L		<0.5	<50
Selenium	μg/L		<0.5	<100
Zinc	μg/L		<0.5	<20

On 30 August 2001, DTSC collected samples of the Discharger's fly and bottom ash to determine if they were hazardous waste. DTSC determined the samples were non-hazardous. A tabulation of the pH and total detectable results from 2004 through 2007 for Title 22 metals are as follows:

Table F-6. Title 22 Metals in Ash.

Constituent	Units	Fly Ash	Bottom Ash
pH	units	11.9	12.1
Arsenic	mg/kg	8.0	<9.0
Barium	mg/kg	362	225
Cadmium	mg/kg	1.2	<1.0
Cobalt	mg/kg	11.1	6.2
Chromium	mg/kg	48.8	23.4
Copper	mg/kg	130.1	63
Nickel	mg/kg	49.5	25.2
Lead	mg/kg	54.0	14.6
Vanadium	mg/kg	66.1	46.7
Zinc	mg/kg	290	42.5

c. **Ponds**

The Shasta facility has two wastewater management units: a 1-million-gallon lined blowdown pond, and a 2.8-acre unlined retention pond. In addition, the Shasta facility has a 2-million-gallon fire protection/cooling water pond. The fire protection/cooling water and blowdown ponds are lined with a 36-mil synthetic plastic.

The Discharger has the option of discharging blowdown pond wastewater to the retention pond and/or to an on-site landscape irrigation system. The existing Order requires the Discharger to sample the blowdown pond for specific constituents. The Discharger's January 2007 to December 2007 monitoring reports characterize the blowdown pond wastewater as follows:

Table F-7. Blowdown Pond Characterization.

Constituent	Units	Range
Chloride	mg/L	33.9 to 79
pH	Units	7.84 to 8.78
Specific Conductance	μmhos/cm	563 to 852
Sulfate	mg/L	9.5 to 16.2
Total Dissolved Solids	mg/L	
Arsenic	μg/L	<100
Manganese	μg/L	7.8 to 52.6
Molybdenum	μg/L	<10 to 31
Vanadium	μg/L	21 to 30

d. **Septic System**

Domestic wastewater from the Shasta facility discharges to a septic system consisting of lift station, septic tank, pump station, forced main to a distribution tank, and a leachfield consisting of six-lines (100 feet each) north of the office building. Approximately 1,600 gpd of domestic sewage, generated from restroom facilities at the administration building, turbine building, and maintenance building flow into a lift station and are pumped to a septic tank on the east side of the administration building. In 1994, due to high groundwater conditions and elevated concentrations of bacteria in the internal under drain system, the Discharger relocated the original leachfield, located adjacent to the administration building, to an area north of the office. The leachfield includes 600 feet of shallow leach line and a soil mound (approximately 950 cubic yards). Test pits in the new leachfield area found five feet of gravelly silt and sand underlain by three feet of gravelly sandy silt, becoming moist with depth. Silty/sandy clay was encountered at 8.5 and 9 feet, the bottom of the test pits.

Coliform bacteria continue to be detected in surface water discharges from the facility. The Discharger has conducted multiple investigations to determine the source of the bacteria. The Discharger's preliminary results indicate that the septic system may not be a contributing source of the bacteria. However, to ensure that the septic system is not a source of bacteria, the discharger is preparing a work plan to upgrade the septic system to include disinfection. Additional details can be found in Attachment F, Section II. G. Planned Changes.

To protect water quality, the *Guidelines for Waste Disposal from Land Developments* specifies that the depth to anticipated highest ground water below the leaching trench shall not be less than five feet. Three shallow piezometers are installed adjacent to the leachfield. The reported depth to ground water ranges from 0.00 to 3.0 feet. Although the shallow groundwater has not caused surfacing sewage, total and fecal coliform bacteria have historically been found in the internal under drain system (IW-Shasta) at discharge point D-002 and the westerly under drain discharge at D-003. Wastewater from the internal under drain system discharges to the retention pond at discharge point D-002. As established in the previous Order, these requirements continue the discharge prohibition for domestic wastewater in the internal under drain system and the westerly under drain system. The Discharger's January 2007 to December 2007

monitoring reports characterize IW-Shasta and the westerly under drain system (DIS-003) as follows:

Table F-8. Internal Discharge Locations, Shasta Facility, January to December 2007.

Constituent	Units	Discharge 002 (IW Shasta)	Discharge 003 (westerly under drain system)
Specific Conductance	umhos/cm	548 to 835 (avg: 701)	172 to 713 (avg: 332)
Total Coliform	MPN/100mL	<2 to >2400	<2 to >2400
Fecal Coliform	MPN/100mL	<2 to >130	<2 to 80

Sampling of effluent from discharge point D-001 and the ACID canal, upstream and downstream of the discharge, has detected total and fecal coliform bacteria in the discharge and downstream receiving water. The fecal coliform concentrations in the ACID canal, downstream of the discharge, exceeded the water quality objectives for contact recreation during any 30-day period: 200/100mL, the geometric mean, and 400/100mL, the maximum. This Order contains total and fecal coliform monitoring at discharge point D-001 and the upstream and downstream receiving water stations, as established in the previous Order. These requirements also continue a receiving water limitation for fecal coliform bacteria in the ACID canal until the septic system improvements are implemented. These monitoring requirements will remain until 6 months after the successful implementations of the sewage system improvements.

The Discharger shall prepare a work plan to address improvements to the septic system including expansion of the leachfield area and disinfection/dechlorination of the wastewater at the Shasta facility as required by Special Provision VI.C.3.b.

f. **Groundwater Monitoring.** As required under the previous Order, the Discharger is required to monitor shallow groundwater in the vicinity of the leachfield at the Shasta facility. Shallow piezometers have been installed in the vicinity of the leachfield and are sampled to monitor for any impacts from the septic tank, force main, and leachfield.

Characterization of the wood fuel, blowdown pond, and retention pond indicates that leachate from these areas at the Shasta facility may have a reasonable potential to impact the underlying usable groundwater by migrating through the permeable subsurface materials. The previous Order required the Discharger to evaluate the potential impacts on usable groundwater, recommend the acceptable level of degradation that complies with Resolution 68-16, and determine appropriate groundwater limits. In July 2007 the Discharger submitted a report proposing numerical limits for groundwater quality within the monitoring wells. This Order establishes numerical groundwater limitations and monitoring requirements for the three-onsite monitoring wells.

6. **Shasta Facility Petroleum Storage**
Various petroleum products are used to maintain the Shasta facility's equipment. The aboveground storage tanks have secondary containment. The Discharger has submitted a Spill Prevention Control and Countermeasure Plan for the Shasta facility's aboveground petroleum storage. The SPCC plan lists all petroleum storage containers greater than 200-gallons, which include:

Table F-9 Shasta Facility Petroleum Storage.

Petroleum Container	Location
12,000-gallon Diesel fuel	Equipment service area (underground)
700-gallon Turbine oil GST ISO 32	Turbine generator building
400-gallon Hydraulic Oil AW ISO 46	Truck Dumps
400-gallon Diesel fuel	Fire pump house
300-gallon Diesel Fuel	Turbine generator building
275-gallon RPM SAE 10W Oil	Equipment service area
275-gallon Delo 400 15W-40 Oil	Equipment service area
275-gallon Hydraulic Oil AW ISO 46	Equipment service area

B. Wheelabrator Lassen Facility

Wheelabrator Lassen Inc. (hereafter Discharger) has operated the Lassen facility since 1996. As shown on Attachment B, the Lassen facility, a 48.5-MW natural gas-fired electrical generation facility, is south of the City of Anderson in Section 24, T30N, R4W, MDB&M. It is base loaded and operates 24 hours per day, 7 days per week. Two maintenance outages are scheduled each year, typically in May and September/October. Distilled water is also produced at the Lassen facility to maintain the Discharger's status as a qualifying facility under the Public Utility Regulatory Policy Act.

The Lassen facility occupies approximately four acres, of which a total of 0.68 acres are leased from Shasta Acquisition. The leased land is located on portions of the following parcels: Assessor's Parcel Numbers 090-150-001, 090-150-008, and 090-150-009. The remaining land (not leased by Wheelabrator Lassen Inc.) is located on these three parcels, as well as Assessor's Parcel Numbers 090-150-011 and 090-170-005. Surface drainage is to the Anderson Cottonwood Irrigation District (ACID) canal, via the Shasta facility retention pond, a tributary of Cottonwood Creek, at latitude 40°25'49" and longitude 122°16'32" (Assessor's Parcel Numbers 090-360-037).

All power generating equipment is stored in covered buildings. Power generation equipment includes a heat recovery steam generator that produces approximately 120,000 lb/hr of steam, an electrical generator (combined gas turbine and power turbine), a gas generator evaporative cooler, and an electrical switchyard. Additionally, the following are at the site: bulk petroleum tanks, small volume petroleum product storage area, oil-filled transformers, storage and use of water treatment chemicals, equipment maintenance areas, paved and unpaved roadways, one water supply well, a laboratory, a domestic waste holding tank, and an office. A 14-inch pipeline was originally installed between the Shasta facility and Shasta Paper Company to transport steam. It was modified in December 2002 to convey process water and storm water approximately 3,800 feet from the Lassen facility to the Shasta facility retention pond for discharge.

The Lassen facility's wastes include: boiler blowdown, continuous sample line discharge, reverse osmosis brine concentrate, demineralization system backwash, reverse osmosis pre-filter backwash, cooling water, distillation system cooling water, and storm water runoff. (See Attachment C-2). Domestic Waste is stored in a concrete vault and hauled offsite for disposal as necessary.

Electricity is generated at the Lassen facility by supplying natural gas and steam to the gas turbine. Steam of varying pressures is generated by the heat recovery stream generator. High-pressure steam is recycled back to the gas turbine to increase its operating efficiency. Intermediate and low pressure steam is used in steam seals and in the distillation system.

1. **Lassen Facility Operations**
   Electricity is generated at the Lassen facility by supplying natural gas and steam to the gas turbine. Steam of varying pressures is generated by the heat recovery stream generator. High pressure steam is recycled back to the gas turbine to increase its operating efficiency. Intermediate and low pressure steam is used in steam seals and in the distillation system.

   Over 2,200 gpm of groundwater is supplied to the Lassen facility. The Discharger estimates that over 75 percent of the water discharged from the Lassen facility is single-pass, noncontact cooling water. Use of this water is summarized below:

   a. **Process water**
      Approximately 200 gpm of water is provided to the water treatment system for use in the boiler and turbines. Water is filtered, treated with reverse osmosis, and polished with cation/anion exchange resins prior to heating in the boiler. Waste streams from these processes, which all discharge to the Retention Pond, include the following:

      - Intermittent backwash of the activated carbon filter generates approximately 2,350 gallons every week (average of 0.2 gpm).
      - Continuous operation of the reverse osmosis system generates approximately brine concentrate which is recycled back to the clear well. Total suspended solids and oil and grease were not detected in this waste stream (reporting limit was 10 mg/L). An anti-scalant is added prior to the reverse-osmosis system.
      - Intermittent backwash of the demineralization system generates approximately 13,820 gallons every 2 weeks (average of 0.7 gpm).
      - Continuous boiler blowdown generates approximately 12 gpm of wastewater. Total suspended solids and oil and grease were not detected in this waste stream (reporting limit was 10 mg/L). An anti-scalant is added in the boilers.
      - Continuous sample line discharge generates approximately 5 gpm of boiler wastewater that is analyzed at the on-site laboratory.

b. **Cooling Water**

The remainder of the pumped groundwater is discharged to a clear well. This clear well provides cooling water and residual thermal heat is used in the distillation processes, as discussed below:

- Approximately 220 gpm, used as non-contact cooling water in the gas generator evaporative cooler, are recycled back to the clear well. This cooler lowers the temperature of the gas turbine air inflow, thus increasing its density and improving the efficiency of the turbines. Depending on ambient conditions, between 60 to 80 percent of the water supplied to the cooler is lost to evaporation and the remainder, which has a higher salt concentration, is returned to the clear well.
- Approximately 665 gpm, used as non-contact cooling water in the generator, lube oil, and gas compressor, are recycled back to the clear well. This recycled water is eventually used to cool the distillation system prior to discharge to the retention pond and ACID canal.
- Approximately 2,200 gpm are supplied from the clear well to the distillation system (Aqua-Chem Model BR-2800-SB-SA) in the former "Power Boiler Building". This water is used as feed and cooling waters to produce approximately 45 gpm of distilled water. Approximately 2,155 gpm of blowdown water and cooling water are also generated and discharged to the ACID canal. Additionally, in the distillation process, some water is lost to evaporation. Water treatment chemicals are used in the distillation system. Floor drains in the distilled water system room will be routed to the Retention Pond.
- Incidental discharges from the Power Boiler Building (e.g. pump packaging leaks, water cooled bearings, etc.).

c. **Domestic Waste**

An unspecified amount of water is used for domestic purposes by approximately six full-time employees. The water is chlorinated prior to use. Domestic waste is currently discharged to the mill sanitary sewer. In 2003, piping was modified to direct domestic waste to an underground holding tank; solids are periodically pumped by a licensed hauler to a publicly owned treatment plant. The Discharger plans to install a septic system in within the next five years. The septic system will be permitted per Shasta County Environmental Health requirements. Revisions to or renewals of this Order may include septic tank requirements.

d. **Washdown Water**

An unspecified volume of washdown water from the floor drains of the turbine generator building is discharged to a separate holding tank and pumped regularly by a licensed hauler. This washdown water contains detergents and oil residues.

Storm water runoff is also discharged to the ACID canal, via the retention pond. An estimate of the total volume of water used and discharged from the Lassen facility to IW-Lassen is provided in the table below.

Table F-10. Average Process Water Discharge Rates to IW-Lassen, Lassen Facility

Internal Waste Sources	Average Discharge Flow Rates[1]		
	(gpm)	(gpd)	Assumptions
Prefilter backwash	0.2	317	(2,350 gal/wk)
Reverse osmosis brine concentrate	recycled	recycled	
Demineralization system backwash	0.7	994	(13,820 gal/2 wks)
Blower blowdown	12	17,280	
Lab sample line	5	7,200	
Existing cooling systems	recycled	recycled	
Distillation system wastewater	2,155	3,103,200	
Total	2,173	3,129,120	

[1]Not including storm water discharges.

e. **IW-Lassen Discharge**

The Discharger sampled their water supply (from their clear well) in July 2002 and discharge (combination of all internal waste streams discharged) in April 2007. Results are summarized in the table below:

Table F-11. Quality of Water Supply and Discharge, Lassen Facility

Parameter	Water Supply (July 2002)	Discharge (April 2007)
pH	8.13	7.59
Specific Conductance (umhos/cm)	211	280
Turbidity (NTUs)	<0.5	
Total Coliform (MPN/100mL)	2	
Fecal Coliform (MPN/100mL)	<2	
Total Settleable Solids (ml/L)	<0.1	
Total Dissolved Solids (mg/L)	135	136
Bicarbonate (mg/L)	78	94
Chloride (mg/L)	11.5	21.5
Nitrate as N (mg/L)	1.36	0.9
Sulfate (mg/L)	6.5	6.4
Calcium (ug/L)	12,600	13,000
Magnesium (ug/L)	9,390	9,610
Sodium (ug/L)	15,900	28,900
Silicon (ug/L)	35,700	17,900
Potassium (ug/L)	1,240	<2,000
Aluminum (ug/L)	254	
Manganese (ug/L)	<5.0	

Additionally, the Discharger sampled the Lassen facility effluent water in April 2005, April 2006, and April 2007 to determine if priority pollutants were detected. A summary of detected compounds is included in Attachment G. Analytical results were submitted for volatile substances, semi-volatile compounds, polychlorinated biphenols, and metals. These priority pollutants were not detected in the effluent samples at concentrations that will cause or contribute to a violation of any applicable water quality criteria contained in the Basin Plan. For several parameters, water quality criteria have been established at concentrations less than the laboratory detection limits. Based on current technology, it is reasonable to assume that these remaining constituents will not cause or contribute to violations of water quality criteria either.

2. **Water Supply at the Lassen Facility**
   Approximately 2,168 gpm of water is supplied to the Lassen facility by Well 12 and Well 15. Both wells are located on-site. Well 12 and Well 15 are installed to depths of 540 and 560 feet below ground surface (ft bgs), respectively. Well 15 is screened from 120 to 200 ft bgs and 280 to 560 ft bgs. The Well 15 boring log indicates layers of clayey gravel, clay, sandy clay, gravelly clay, sand, and gravel from ground surface to approximately 400 ft bgs. Basaltic lava, tuff, tuffaceous clay, sand, and gravel were encountered between approximately 400 to 560 ft bgs.

3. **Chemicals Used at the Lassen Facility**
   Various chemicals used to treat the water, and maintain the boilers and cooling towers are stored in secondary containment throughout the Lassen facility. Additionally, chemicals will be used in the distillation process. The Discharger maintains Material Safety Data Sheets (MSDS) for all chemicals used at the Lassen facility. The chemicals currently in use include:

Table F-12. Chemicals Used at the Lassen Facility

Chemical Name	Tank Size	Containment
Sodium Hydroxide, 50%	4000-gal tank	Concrete Containment Area
Sulphuric Acid, 93%	4200-gal tank	Concrete Containment Area
Drew Phos 2600	2000-gal tank	Concrete Containment Area
Amercor 8750	1000-gal tank	Concrete Containment Area
Mekor 70	1000-gal tank	Concrete Containment Area
Cortrol OS7700	400-gal portable totes	Concrete Containment Area
Mecor 70	400-gal portable totes	Concrete Containment Area
Vitec 3000	55-gal drums	Reverse Osmosis Building
Conntect 5000	55-gal drums	Gas Turbine Building

With the exception of Conntect 5000, all chemicals are for boiler water treatment. Conntect 500 is an engine cleaner detergent.

4. **Lassen Facility Fuel sources**
There are no wood fuel storage areas and ash is not generated or stored at the Lassen facility. The only fuel source for the Lassen facility is natural gas, as specified by a Permit To Operate (No. 96-PO-31d) and a Title V Operating Permit (No. 96-VP-31d) issued by the Shasta County Department of Resource Management Air Quality Management District (SCAQMD).

Sempra supplies natural gas to the Lassen facility through a transmission system owned by Pacific Gas & Electric. The Discharger owns the 3,000-ft, 6-in diameter single-wall underground pipe between PG&E's system to the Lassen facility's gas compressors. At the compressors, the gas pressure is raised from 600 psi to 700 psi. An additional single-walled pipeline connects the compressors with the gas turbine. The Lassen facility gas turbine uses 395,000 cubic feet of gas per hour.

5. **Lassen Facility Storm Water and Groundwater Considerations**
The Lassen facility is estimated to be 4 acres. More than 90 percent of the facility is paved or covered with buildings. The facility is surrounded by Shasta Paper Company's mill. In 2003, the Lassen facility began diverting run-on storm water around or through the facility via curbing or grading to existing or new catch basins/swales.

Only storm water from the core industrial area (approximately 2.75 acres) within the Lassen facility property will be managed under this NPDES permit. The Discharger estimates that approximately 75 percent of storm water is discharged in IW-Lassen to the Retention Pond. The remaining is discharged offsite as sheet flow off access

roads or other non-industrial areas onto adjacent mill property.

During rare short-term high intensity storms, some sheet flow to existing mill catch basins adjacent to the core area may occur. The overflow to the mill system will occur only during storms that exceed the design capacity of the Lassen storm water lift station(s). The design storm for the Lassen lift station(s) is for a 10 to 25-year recurrence interval storm.

There are currently minimal groundwater considerations at the Lassen facility. No wood fuel or ash is stored at the facility and there are no process water ponds on-site. All petroleum products and hazardous materials are secondarily contained or are stored in buildings. Domestic waste is currently managed by a holding tank. Should a septic tank be installed, the Discharger may be requested to evaluate groundwater conditions to determine the potential for groundwater impacts.

6. **Lassen Facility Petroleum Storage**
Limited volumes of petroleum products are stored at the Lassen facility. All drums and tanks have secondary containment and roof covers. A Spill Prevention Control and Countermeasure Plan for the Lassen facility was certified by a registered engineer in April 2006. The SPCC plan lists the following petroleum storage containers:

Table F-13. Lassen Facility Petroleum Storage

Petroleum Container	Volume	Containment
Waste Oil	1000-gal tank	Concrete Basin
Lube oil	125-gal tank	Floor Drain/Holding Tank
Turbine Oil	700-gal tank	Floor Drain/Holding Tank
Remote Substation	568-gal tank	Concrete Basin
GST ISO 68 Oil	(2) 55-gal drum	Concrete Basin/Covered
GST Oil ISO 32	55-gal drum	Indoors/Floor Drain
GST Oil ISO 150	(2) 55-gal drum	Concrete Basin/Covered
Turbo Oil 2380	55-gal drum	Concrete dike w/ roof cover
Turbo Oil 2380	55-gal drum	Concrete dike w/ roof cover

Additionally, oil-filled transformers are at the following portions of the facility: remote substation (7,010 gal), power boiler area (170 gal), and natural gas compressor station (182 gal).

C. Description of Wastewater Treatment or Controls

Effluent from both the Lassen facility and the Shasta facility continuously discharges to a retention pond at the Shasta facility. The 2.8-acre unlined retention pond is highly vegetated with cattails, tall grass, trees, and shrubs. The vegetation decreases flow velocity and increases retention time, allowing for additional settling and heat loss. The retention pond contents drain into an open channel, through a 60-inch concrete pipe, and through a 12-inch discharge pipe before discharging into the ACID canal.

The Discharger estimates that in the summer, discharge from the Lassen facility is approximately 4 percent of the ACID canal flow, resulting in a maximum receiving water

temperature increase induced by the Lassen facility flow to be approximately 1.5°F (0.9°C). The Discharger estimates that Shasta facility flow, which is approximately 10 percent of the Lassen facility flow, would not significantly affect this temperature estimate. In the ROWD, the Discharger estimates the temperature of the following Lassen facility waste streams as follows:

Table F-14. Temperature Estimates, Lassen Facility

Waste Stream	Summer/Winter (°F)	Summer/Winter (°C)
Clear well (influent)	66/ 60	18.9/ 15.6
Discharge of existing cooling systems	85/ 79	29.4/ 26.1
Influent to new distillation system	73/ 67	22.8/ 19.4
Influent to new distillation system	73/ 67	22.8/ 19.4
Discharge of new distillation system	98/ 92	36.7/ 33.3
Lassen facility discharge	96/ 90	35.6/ 32.2
ACID canal (upstream)	57/ NA	13.7 /NA

The Discharger has installed a discharge header at the inlet to the Shasta facility retention pond (point of discharge) to dissipate thermal energy and reduce temperature impacts on ACID in the winter. Additionally, the first natural waterways that may receive discharge from the Lassen and Shasta facilities are approximately 2 miles downstream. During the winter, temperature impacts of the Lassen facility waters on these creeks are expected to be low due to heat loss during travel time, dilution from storm water, and infiltration along the canal bed. Receiving water monitoring since January 2005 has shown that receiving water limits are being met.

D. Discharge Points and Receiving Waters

1. The Shasta facility is south of the City of Anderson in Sections 26, T30N, R4W, MDB&M, while the Lassen facility is located south of the City of Anderson in Section 24, T30N, R4W, MDB&M, as shown on Attachment B (Figure B-1).

2. Process water, groundwater, and storm water from both facilities is discharged at discharge point D-001 to Anderson Cottonwood Irrigation District (ACID) canal, a tributary of Crowley Creek, Gotta Creek, Hooker Creek, Patterson Creek, tributaries of Cottonwood Creek, and the Sacramento River at a point Latitude 40° 25’ 49” N and Longitude 122° 16’ 32” W.

3. Within the 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).

E. Summary of Historical Requirements and Self-Monitoring Report Data

Effluent Limitations and Discharge Specifications contained in the existing Order for discharges from retention pond, IW-Shasta, and the westerly under drain at discharge points D-001, D-002, and D-003 (Monitoring Location EFF-001, EFF-002, EFF-003) and representative monitoring data from the term of the previous Order are as follows:

Table F-15. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (1/2005 – 12/2007)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Daily Discharge (D-001)	Highest Daily Discharge (D-002)	Highest Daily Discharge (D-003)
Chloride	mg/L	106		250	34.6		
Settleable Solids	mL/L	0.1		0.2	0.1		
Electrical Conductivity @ 25°C	umhos /cm	700		1,000	291		
Sulfate	mg/L			250	8.9		
Turbidity	NTU				2.11		
Chlorine	mg/L	0.01		0.02	<0.02		
Aluminum	ug/L						
Iron	ug/L				144		
Manganese	ug/L						
Hardness	mg/L						
pH	pH units	pH shall remain within the range of 6.5 and 9.0 at all times			(8.5,7.5)(1)	(8.9,7.5)(1)	(8.5,6.5)(1)

(1) Instantaneous Maximum and Instantaneous Minimum.

F. Compliance Summary

Based on the monitoring data submitted by the Discharger from January 2004 through February 2008, the Discharger appears to have been in compliance with the permit with the exeption of two receiving water violations for fecal coliform bacteria. As discussed in this permit, it is possible that the Discharger did not cause the violations. Nonetheless, a sewage disinfection system will be installed.

G. Planned Changes

The Discharger shall prepare a work plan to address improvements to the septic system including expansion of the leachfield area and disinfection/dechlorination of the wastewater at the Shasta facility. The work plan shall be completed and submitted to the Regional Water Board within 3 months of the effective date of this Order for approval by the Executive Officer. Within 3 months of approval by the Executive Officer, the discharger shall complete implementation of the work plan.

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 section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

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.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans**. As explained in Findings, Section II. H, the Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised February 2007), 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*." The Basin Plan does not specifically identify beneficial uses for the Anderson Cottonwood Irrigation District Canal, but does identify present and potential uses for the Cottonwood Creek, to which the Anderson Cottonwood Irrigation District Canal is tributary. 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 Anderson Cottonwood Irrigation District Canal downstream of the discharge are municipal and domestic supply (MUN); agricultural supply, including stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation, including aesthetic enjoyment; commercial and sport fishing (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); cold fish migration (MIGR), warm spawning, reproduction, and/or early development (SPWN); cold spawning, reproduction, and /or early development (SPWN); and wildlife habitat (WILD).

   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.

In reviewing whether the existing and/or potential uses of Cottonwood Creek apply to the ACID Canal, the Regional Board has considered the following facts:

a. Domestic Supply and Agricultural Supply. The Regional Board is required to apply the beneficial uses of municipal and domestic supply to the ACID canal based on State Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Board Resolution 89-056. In addition, the State Water Resources Control Board (SWRCB) has issued water rights to existing water users along the ACID canal and Cottonwood Creek downstream of the discharge for domestic and irrigation uses. Since the ACID canal is an intermittent stream, the ACID canal likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in the ACID canal.

b. Water Contact and Noncontact Recreation and Esthetic Enjoyment. The Regional Board finds that the discharge flows through residential areas, there is ready public access to the ACID canal, exclusion of the public is unrealistic and contact recreational activities currently exist along the ACID canal, and downstream waters and these uses are likely to increase as the population in the area grows. Prior to flowing into Cottonwood Creek, the ACID canal flows through areas of general public access, meadows, residential areas and parks. Cottonwood Creek also offers recreational opportunities.

c. Groundwater Recharge. In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since the ACID canal is at times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply.

d. Freshwater Replenishment. When water is present in the ACID canal, there is hydraulic continuity between the ACID canal and Cottonwood Creek. During periods of hydraulic continuity, the ACID canal adds to the water quantity and may impact the quality of water flowing down stream in the Cottonwood Creek.

e. Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources. The ACID canal flows to Cottonwood Creek via Schmeider Gulch, Hooker Creek,

Patterson Creek and numerous downstream unnamed tributaries. The Basin Plan (Table II-1) designates the Cottonwood Creek as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to the ACID canal. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/l. This approach recognizes that, if the naturally occurring in-stream dissolved oxygen concentration is below 7.0 mg/l, the Discharger is not required to improve the naturally occurring level.

The beneficial uses of any specifically identified water body generally apply to its tributary streams. The Regional Board finds that, based on hydraulic continuity, aquatic life migration, existing and potential water rights, and the reasonable potential for contact recreational activities, that the beneficial uses of the Cottonwood Creek apply to the ACID canal. The Regional Board also finds that based on the available information, the ACID canal absent the discharge, is at times an intermittent stream. The intermittent nature of the ACID canal means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge at times maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the ACID canal help support the cold-water aquatic life. Both conditions may exist within a short time span, where the ACID canal would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Cottonwood Creek. Dry conditions occur primarily in the winter months, but dry conditions may also occur throughout the year, particularly in the late fall and early spring. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall events. The ACID canal flows are unknown at this time; however, the Discharger will conduct flow monitoring on the ACID canal to determine the actual flow regime. To the extent assimilative capacity is available in the receiving water to accommodate constituents in the effluent which exceed reasonable potential criteria, this permit contains a re-opener to set final effluent limitations based on concentrations or conditions determined to be in the receiving water. However, effluent limitations contained in this permit, do not account for the receiving waters having assimilative capacity. If necessary, the Discharger may submit receiving water characterization to demonstrate the flow regime and pollutant assimilative capacity and ask the Regional Board to re-open the permit to consider this new information.

Order No. 87-110 was adopted on 26 June 1987 for the ACID. This Order authorized the use of herbicides in the ACID canal. Other plants and aquatic life in the treatment area may be impacted. The Order prohibits the discharge of any chemical herbicide or other toxic materials into live streams, lakes, or ponds utilized as domestic water sources or which are fish-bearing waters. ACID applies Magnacide, an aquatic herbicide, along portions of the canal during early summer. Treated waters are conveyed along the canal and discharged to pastures and fields. ACID implements best management practices to ensure that treated waters are not released into natural waterways along the canal.

Magnacide is registered under the Federal Insecticide, Fungicide and Rodenticide Act and bears an EPA approval label. The label states that the herbicide is toxic to fish and wildlife, should be kept out of lakes, streams, or ponds, and should not be applied to drainage areas where runoff or flooding will contaminate other bodies of water. The use of Magnacide is toxic to aquatic life for its intended use in the ACID canal.

As noted previously, the ACID canal is typically fully charged during the irrigation season, which typically lasts from April through October. During the non-irrigation season, the ACID canal is dry or partly dry, absent the discharge. During storm events, the ACID canal does accept and convey surface water runoff.

The Basin Plan states that: "At no time shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature". The Basin Plan further states: "In determining compliance with the water quality objectives for temperature, appropriate averaging periods may be applied provided that beneficial uses will be fully protected". Previous Order No. R5-2003-0013 included a receiving water limitation for temperature, derived from the Basin Plan, which stated: "The discharge shall not cause the following in the ACID Canal: …10. Increase the normal ambient temperature of waters by more than 5°F(3°C)."

The effluent from the Discharger's water distillation unit includes thermal waste. The Discharger estimates discharge from the Lassen facility may be 96°F in the summer and 90°F in the winter. Upstream receiving water temperatures are estimated to be 57°F in the summer. Since flow in the ACID canal is intermittent in the winter, no temperature estimate has been made. These estimates suggest that downstream receiving water temperature observations may exceed upstream observations by greater than 5°F. However, there is insufficient information to determine whether the normal ambient temperature of the downstream receiving water bodies, such as Schmeider Gulch, Hooker Creek, Patterson Creek or Cottonwood Creek, would be increased greater than 5°F above ambient temperatures.

2. **Thermal Plan. Not Applicable.**

3. **Bay-Delta Plan. Not Applicable.**

4. **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.

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

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

7. **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.

8. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 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).

9. **Emergency Planning and Community Right to Know Act.** Not Applicable.

10. **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 open pit diatomite mining and processing. Open pit diatomite mines and processing facilities are applicable industries under the storm water program and are obligated to comply with the federal regulations.

    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 non-metallic minerals mining facilities to sample for additional constituents. Specifically, the category "Mineral Mining and Dressing…" requires total suspended solids (TSS) 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 Permit.

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

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

1. Under Section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2002 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 receiving water has not been 303d-listed.

2. **Total Maximum Daily Loads.** No TMDL has been adopted for the receiving water.

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.

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 Federal 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 Section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal Regulations, 40 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: 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 water quality-based effluent limitations 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, 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 nad 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 that adversely affect benifecial uses. At minimum, *"…water designated for use as 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 benefical uses."*

A. Discharge Prohibitions

As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

1. Discharge of wastewater, including industrial storm water at a location or in a manner different from that described in the Findings, is prohibited.

2. The by-pass or overflow (except by design) of wastewater, including industrial storm water to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

3. The discharge of leachate from wood fuel stockpiles to surface waters or surface water drainage courses is prohibited.

4. The discharge of ash, bark, sawdust, wood, debris, or any other wastes to surface water drainage courses is prohibited.

5. The direct discharge of domestic wastes to the underdrain systems at the Shasta facility is prohibited.

6. The discharge of polychlorinated biphenyl compounds from the Lassen facility is prohibited.

7. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

8. 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.

9. 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

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. Section 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations 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 section 125.3.

2. Applicable Technology-Based Effluent Limitations

The Discharger owns and operates a 54-megawatt (MW) wood-burning power plant (Shasta facility) and the 48.5-MW natural-gas power plant (Lassen facility)).
The Code of Federal Regulations (CFR) Part 423 specifies effluent limitations for the Steam Electric Power Generating Point Source Category. Fossil fuel is used secondarily at the Shasta facility and primarily at the Lassen facility. Therefore, 40 CFR 423 is applicable only to the Lassen facility discharge. In addition, since the Discharger does not spray water on logs at the Shasta facility, effluent limitations established in the Code of Federal Regulations, Wet Storage Subcategory (40 CFR Part 429, Subpart I) are not applicable to discharge from the Shasta facility.

a. Shasta Facility – Does Not Apply

b. Lassen Facility

The following section is quoted from 40 CFR 423 with the effluent limitations applying to the Lassen Facility Discharge Points:

40 CFR 423.12. Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(b) Any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction by the application of the best practicable control technology currently available:

(1) The pH of all discharges, except once through cooling water, shall be within the range of 6.0 to 9.0.

(2) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

(3) The quantity of pollutants discharged from low volume waste sources shall not exceed the quantity determined by multiplying the flow of low volume waste sources times the concentration listed below:

- Total Suspended Solids shall not exceed 100 mg/L maximum for any one day or 30 mg/L average of daily values for 30 consecutive days

- Oil and Grease shall not exceed 20.0 mg/L maximum for any one day and 15.0 mg/L average of daily values for 30 consecutive days.

(5) The quantity of pollutants discharged in metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of metal cleaning waste times the concentration listed below:

- Total Suspended Solids shall not exceed 100 mg/L maximum for any one day or 30 mg/L average of daily values for 30 consecutive days

- Oil and Grease shall not exceed 20.0 mg/L maximum for any one day and 15.0 mg/L average of daily values for 30 consecutive days.

- Total copper shall not exceed 1.0 mg/L maximum for any one day and 1.0 mg/L average of daily values for 30 consecutive days.

- Total iron shall not exceed 1.0 mg/L maximum for any one day and 1.0 mg/L average of daily values for 30 consecutive days.

(6) The quantity of pollutants discharged in once through cooling water shall not exceed the quantity determined by multiplying the flow of once through cooling water sources times the concentration listed below:

- Free available chlorine shall not exceed 0.5 mg/L maximum for any one day and 0.2 mg/L average of daily values for 30 consecutive days.

(7) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling water blowdown sources times the concentration listed below:

- Free available chlorine shall not exceed 0.5 mg/L maximum for any one day and 0.2 mg/L average of daily values for 30 consecutive days.

(8) Neither free available chlorine not total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

(11) At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as a concentration limitation instead of the mass based limitations specified in paragraphs (b)(3) through (b)(7) of this section. Concentrations shall be those concentrations specified in this section.

(12) In the event that waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant to pollutant property controlled through paragraphs (b)(1) through (b)(11) of this section attributable to each controlled waste source shall not exceed the specified limitations for that waste source.

40 CFR 423.13. Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best technology economically achievable (BAT)

Except as provided in 40 CFR §125.30 through §125.32, and subject to the provisions of paragraphs (b) and (c) of this section, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of best available technology economically achievable (BAT).

(a) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

(b)(1) For any plant with a total rated electric generating capacity of 25 or more megawatts, the quantity of pollutants discharged in once through cooling water from each discharge point shall not exceed the quantity determined by multiplying the flow of once through cooling water from each discharge point times the concentration listed below:

- Total residual chlorine maximum concentration of 0.20 mg/L.

(b)(2) Total residual chlorine may be discharged from any single generating unit for more than two hours in any one day unless the discharger demonstrates to the permitting authority that the discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

(d)(1) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling water blowdown sources times the concentration listed below:

- Free available chlorine shall not exceed 0.5 mg/L maximum for any one day and 0.2 mg/L average of daily values for 30 consecutive days.

- The 126 priority pollutants (Appendix A) contained in the chemicals added for cooling tower maintenance, except for total chromium and total zinc shall be no detectable amount maximum for any one day and the average of daily values for 30 consecutive days shall not exceed no detectable amount.

- Chromium, total shall not exceed 0.2 mg/L maximum for any one day or 0.2 mg/L average of daily values for 30 consecutive days

- Zinc, total shall not exceed 1.0 mg/L maximum for any one day and 1.0 mg/L average of daily values for 30 consecutive days.

- Total Suspended Solids shall not exceed 100 mg/L maximum for any one day or 30 mg/L average of daily values for 30 consecutive days

- Oil and Grease shall not exceed 20.0 mg/L maximum for any one day and 15.0 mg/L average of daily values for 30 consecutive days.

(d)(2) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

(d)(3) At the permitting authority's discretion, instead of the monitoring specified in 40 CFR 122.11(b) compliance with the limitations for the 126 priority pollutants in paragraph (d)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detected in the final discharge by the analytical methods in 40 CFR part 136.

(e) The quantity of pollutants discharged in chemical metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of chemical metal cleaning waste times the concentration listed below:

- Copper, total shall not exceed 1.0 mg/L maximum for any one day and 1.0 mg/L average of daily values for 30 consecutive days.

- Iron, total shall not exceed 1.0 mg/L maximum for any one day and 1.0 mg/L average of daily values for 30 consecutive days.

(g) At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as a concentration limitation instead of the mass based limitations specified in paragraphs (b) through (e) of this section. Concentrations shall be those concentrations specified in this section.

(h) In the event that waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property controlled through paragraphs (a) through (g) of this section attributable to each controlled waste source shall not exceed the specified limitations for that waste source.

Table F-16. Summary of Technology-based Effluent Limitations – IW Lassen

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorine, total residual	mg/L			0.2		
Chlorine, free available	mg/L	0.2		0.5		
Oil & Grease	mg/L	15		20		
TSS	mg/L	30		100		
Chromium, total	mg/L	0.2		0.2		
Copper, total	mg/L	1.0		1.0		
Iron, total	mg/L	1.0		1.0		
Zinc, total	mg/L	1.0		1.0		
pH	pH units				6.0	9.0
126 Priority Pollutants[1]	ug/L--	--	--			

(1) No detectable amounts from added chemicals.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires

that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. **Receiving Water.** The beneficial uses of the Anderson Cottonwood Irrigation District Canal and its tributaries downstream of the discharge are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial service supply, power generation, water contact recreation, including canoeing and rafting, other non-contact water recreation, including aesthetic enjoyment, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm spawning habitat, reproduction and/or early development, cold spawning, reproduction and/or early development, and wildlife habitat.

Table F-17. Basin Plan Beneficial Uses

Discharge Points	Receiving Water Name	Beneficial Use(s)
D-001	ACID Canal/ Sacramento River	Existing: Municipal and domestic water supply (MUN). Agricultural supply, including stock watering (AGR); Power Generation (POW); Contact (REC-1) and non-contact (REC-2) water recreation; Cold Freshwater Habitat (COLD); Warm spawning, reproduction, and/or early development, cold spawning, reproduction, and /or early development (SPWN); and Wildlife habitat (WILD). Potential: Warm Freshwater Habitat (WARM)

b. **Effluent and Ambient Background Data**. The reasonable potential analysis (RPA), as described in Section IV.C.3 of this Fact Sheet, was based on data from January 2005 through December 2007, which includes effluent and ambient background data submitted in SMRs and annual reports.

c. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, limitations for certain metals. 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 hardness-dependent metal criteria include cadmium, copper, chromium III, lead, silver, and zinc.

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for

all discharge conditions. The SIP does not address how to determine 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. The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones. The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions.

The point in the receiving water affected by the discharge is downstream of the discharge. As the effluent mixes with the receiving water, the hardness of the receiving water can change. Therefore, it is appropriate to use the ambient hardness downstream of the discharge that is a mixture of the effluent and receiving water for the determination of the CTR hardness-dependent metals criteria. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not always protective of the receiving water under various mixing conditions (e.g. when the effluent hardness is less than the receiving water hardness). The studies evaluated the relationships between hardness and the CTR metals criterion that is calculated using the CTR metals equation. The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

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

Where:

H = Design Hardness
b = metal- and criterion-specific constant
m = metal- and criterion-specific constant

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 relationship between the Design Hardness and the resulting criterion in Equation 1 can exhibit either a downward-facing (i.e., concave downward) or an upward-facing (i.e., concave upward) curve depending on the values of the criterion-specific constants. The curve shapes for acute and chronic criteria for the metals are as follows:

Concave Downward: cadmium (chronic), chromium (III), copper, nickel, and zinc

Concave Upward: cadmium (acute), lead, and silver (acute)

For those contaminants where the regulatory criteria exhibit a concave downward

relationship as a function of hardness, use of the lowest recorded effluent hardness, as a representation of the downstream receiving water hardness for establishment of water quality objectives, is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. Use of the lowest recorded effluent hardness is also protective under all possible mixing conditions between the effluent and the receiving water (i.e., from high dilution to no dilution). Therefore, for cadmium (chronic), chromium (III), copper, nickel, and zinc, the reasonable worst-case ambient hardness can be estimated by using the lowest effluent hardness.

For those metals where the regulatory criteria exhibit a concave upward relationship as a function of hardness, water quality objectives based on either the effluent hardness or the receiving water hardness alone, would not be protective under all mixing scenarios. Instead, both the upstream receiving water hardness and the effluent hardness is used to represent the reasonable worst-case ambient hardness. In this case, using the lowest upstream receiving water hardness in Equation 2, below, is protective if the effluent hardness is ALWAYS higher than the receiving water hardness. Under circumstances where the effluent hardness is not ALWAYS higher than the receiving water hardness, it may be appropriate to use the highest reported upstream receiving water hardness in Equation 2. The following equation provides fully protective water quality criteria for those metals that exhibit a concave upward relationship.

$$\text{CTR Criterion} = \left[\frac{m}{H_{rw}} \cdot \left(H_{eff} - H_{rw} \right) + 1 \right] \cdot e^{m \cdot \ln(H_{rw}) + b} \quad \text{(Equation 2)}$$

Where:

H_{eff} = effluent hardness
H_{rw} = upstream receiving water hardness
b = metal- and criterion-specific constant
m = metal- and criterion-specific constant

d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. 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. Conversion factors at 77 mg/L are summarized in Table F-18 below:

Table F-18. Translators at 77 mg/L hardness as $CaCO_3$.

Parameter	Conversion Factor Freshwater Acute Criteria	Conversion Factors Freshwater Chronic Criteria
Arsenic[1]	1.00	1.00
Cadmium	0.955	0.920
Chromium (VI)	0.982	0.962
Copper	0.960	0.960
Lead	0.829	0.829
Thallium		
Zinc	0.978	0.986

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

e. **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 discretional on the part of the Regional Board. Mixing zones will be limited to the amount of assimilative capacity necessary to comply with discharge limitations. 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.

3. Determining the Need for WQBELs

a. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs. Since effluent from the facility is either discharged from Discharge Point D-001 or D-002, data from both discharge locations was examined together in conducting the reasonable potential analysis.

b. **Constituents with Limited Data.** Reasonable potential cannot be determined for the following constituents because effluent data are limited or ambient background concentrations are not available. The Discharger is required to continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring. 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 luie 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

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

6.8 pH units) and hardness (<10 mg/L as $CaCO_3$) conditions not commonly observed in valley floor. The receiving stream has been measured to have a low hardness—typically between 47 and 168 mg/L as $CaCO_3$. This condition is supportive of the non-applicability of the NAWQC chronic criteria for aluminum, according to USEPA's development document. Therefore, the acute criterion of 750 ug/L is applicable for protection of aquatic life.

The Department of Public Health establishes a 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 effluent data is available, therefore this Order requires monitoring sufficient to provide data for a proper Reasonable Potential Analysis. This permit also contains a reopener 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) is1,000 ug/L, for waters with a pH of 6.5 to 9.0. A 1-hour average (acute) criteria for iron is not available. 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 1,000 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 $CaCO_3$) conditions not commonly observed in valley floor waters.

The Department of Public Health establishes a secondary Maximum Contaminant Level of 300 ug/L, implemented as an annual average, for protection of human health due to long-term exposure.

(b) RPA Results. No effluent data is available, therefore this Order requires monitoring sufficient to provide data for a proper Reasonable Potential Analysis. This permit also contains a reopener 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 freshwater aquatic life for manganese.

The Department of Public Health establishes a secondary Maximum Contaminant Level of 50 ug/L, implemented as an annual average, for protection of human health due to long-term exposure.

(b) RPA Results. No effluent data is available, therefore this Order requires monitoring sufficient to provide data for a proper Reasonable Potential Analysis. This permit also contains a reopener provision for manganese to establish an effluent limit if appropriate.

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 based on analytical data, and the inherent nature of the discharge, the discharge has reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for chorine, chloride, pH, settleable solids, EC, sulfate, aluminum, iron, and manganese. 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. pH.

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

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

(c) WQBELs. Effluent limitations for pH of 6.0 as an instantaneous minimum and 9.0, except for discharges associated with a 10-year 24-hour rainfall event or greater) as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.

ii. 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-19. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	**291**	**445**
TDS (mg/L)	Varies	500, 1000, 1500	**203**	**289**
Sulfate (mg/L)	Varies	250, 500, 600	**8.9**	**21.3**
Chloride (mg/L)	Varies	250, 500, 600	**19.2**	**34.6**

[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.

(1) Chloride. Chloride concentrations in the effluent ranged from 1.0 mg/L to 34.6 mg/L, with an average of 19.2 mg/L. These levels do not exceed the agricultural water goal. No background receiving water chloride data was available. Chloride does not demonstrate reasonable potential. However, due to the nature of the power generation process, elevated chloride concentrations are reasonably likely. An effluent limitation for chloride has been established in this permit based on Best Professional Judgment, and is consistent with the previous Order.

(2) Electrical Conductivity. A review of the Discharger's monitoring reports indicates that the discharger has analyzed for EC more than 152 times during the past five years. The EC in the effluent ranged from 190 µmhos/cm to 445 umhos between January 2005 and December 2007. These levels did not exceed the agricultural water goal. No background receiving water EC was available. Electrical Conductivity does not demonstrate reasonable potential. However, a Salinity Minimization Plan is required. Furthermore, due to the nature of the power generation process, elevated EC concentrations are reasonably likely. An effluent limitation for EC has been established in this permit based on Best Professional Judgment, and is consistent with the previous Order.

(3) Sulfate. Sulfate concentrations in the effluent ranged from 6.6 mg/L to 21.3 mg/L, with an average of 8.9 mg/L. These levels do not exceed the secondary MCL. No background receiving water sulfate data was available. Sulfate does not demonstrate reasonable potential. However, due to the nature of the power generation process, elevated sulfate concentrations are reasonably likely. An effluent limitation for sulfate has been established in this permit based on Best Professional Judgment, and is consistent with the previous Order.

(4) Total Dissolved Solids (TDS). The average TDS effluent concentration was 203 mg/L with concentrations ranging from 116 mg/L to 289 mg/L. These levels do not exceed the applicable water quality objectives and does not demonstrate reasonable potential. No background receiving water TDS data was available. This Order requires effluent and receiving water monitoring for TDS.

(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."

Although chloride, electrical conductivity, and sulfate do not demonstrate reasonable potential, due to the nature of the power generation process, elevated concentrations are reasonably likely to occur. Effluent limitations for these constituents are established in this permit based on Best Professional Judgment, and are consistent with the previous Order. This Order also requires effluent and receiving water monitoring for these constituents.

iii. Settleable Solids

(a) WQO. For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.*"

(b) RPA Results. The discharge has not exhibited exceedences, however, due to the nature of the power generation process, and storm water discharges elevated settleable solids concentrations are reasonably likely. An effluent limitation for settleable solids has been established in this permit based on Best Professional Judgment, and is consistent with the previous Order.

(c) WQBELs. This Order contains average monthly and maximum daily effluent limitations for settleable solids to ensure that the treatment works operate in accordance with design capabilities. 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.

4. WQBEL Calculations

a. This Order does not includes WQBELs for metals as there was no reasonable potential. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e. Attachment H - WQBEL calculations, is included, but is not applicable.

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

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

where:
ECA = effluent concentration allowance
D = dilution credit

C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

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

d. **Aquatic Toxicity Criteria.** WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTAacute and LTAchronic) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

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

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

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

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

where:
multAMEL = statistical multiplier converting minimum LTA to AMEL
multMDEL = statistical multiplier converting minimum LTA to MDEL
MA = statistical multiplier converting acute ECA to LTA_{acute}
MC = statistical multiplier converting chronic ECA to $LTA_{chronic}$

Summary of Water Quality-based Effluent Limitations

Table F-20. Summary of Water Quality-based Effluent Limitations – D-001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
EC	umhos/cm	700		1000		
TDS	mg/L	450				
Sulfate	mg/L			250		
Chlorine	mg/L	0.01		0.02		
Chloride	mg/L	106		250		
Settleable Solids	mL/L	0.1		0.2		
pH	pH units				6.0	9.0

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 bioassays ---------- 70%

Median for any three or more consecutive bioassays --------- 90%

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00). Based on annual whole effluent chronic toxicity testing performed by the Discharger on 4 October 2006, the discharge does not have reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires bi-annual chronic WET monitoring for demonstration of compliance with the narrative toxicity objective and effluent limitation. In addition to WET monitoring, the Special Provision in section VI.C.2.a. of the Order requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if a pattern of toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[2] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management

[2] 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)

practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if a pattern of effluent 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 does not include effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g. CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

2. Averaging Periods for Effluent Limitations.

40 CFR 122.45 (d) requires maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works unless impracticable. The rationale for using alternative averaging periods for aluminum, iron, manganese, and EC 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.

Wheelabrator Shasta Energy Company has evaluated the sources of elevated bacteria in the retention pond at Shasta facility. The Shasta facility's wastes discharged to the retention pond include: boiler blowdown, cooling tower blowdown, wastewater from plant maintenance, storm water runoff, and groundwater from the internal under drain system. None of the processes within the Shasta facility appear to be a source of bacteria. Therefore the elevated level of bacteria detected within the retention pond or the exceedences in the receiving water are not a direct result of the Shasta facility operations. Although studies undertaken by the discharger do not indicate the facility's septic system as a source of the bacteria, Regional Water Board staff has not made a final determination. In order to remove the septic system as a potential source of the bacteria, the discharger has agreed to upgrade the on-site sewage system to include disinfection.

This Order contains a time schedule for completion of the sewage system improvements. This Order also contains compliance determination language with respect to receiving water bacteria limitations that recognize that after the sewage system upgrades are completed, the facility has no more controllable sources of bacteria. Following completion and successful operations of the sewage disinfection system, the effluent and receiving water monitoring requirements will be removed. Previously applicable effluent limitations remain applicable.

4. Satisfaction of Antidegradation Policy

The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. Unlined basins are used for sediments which are retained by the soil and do not pass to groundwater. There are no operational changes proposed other than upgrades to the sewage system, nor are there any proposed increases in pollutant discharges or flows. The impact on existing water quality will be insignificant. This Order specifically prohibits the discharge from causing the water quality in the receiving water to be degraded so as to cause a designated beneficial use or water quality standard to be violated.

5. Final Effluent Limitations – Discharge Point D-001

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point D-001, with compliance measured at Monitoring Location EFF-001, as described in the attached MRP (Attachment E):

Table F-21. Summary of Final Effluent Limitations – D-001

Parameter	Units	Effluent Limitations					Basis
		Average Monthly[2]	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Chloride	mg/L	106		250			
Chlorine, total residual	mg/L	0.01		0.02			
pH[1]	Units				6.5[1]	9.0[1]	
Settleable Solids	mL/L	0.1		0.2			
EC	umhos/cm	700		1,000			
Sulfate	mg/L			250			

(1) Except for discharges associated with a 10-year 24-hour rainfall event, or greater.
(2) 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 consecutive bioassays.

c. The discharge of process water (non-storm water and under drain water)shall not exceed 4.5 mgd.

E. Internal Discharge Limitations. (IW-Shasta and IW-Lassen)

1. **Shasta Facility (IW-Shasta)**

c. The discharge of wastewater from the Shasta facility blowdown pond to the landscape irrigation system at the Shasta facility shall not have a pH less than 6.5 or greater than 9.0 or exceed the following:

Table F-22. IW-Shasta Internal Limitations

Parameter	Unit	30-day Average	Daily Maximum
Chloride	mg/L	106	250
EC	umhos/cm	700	1000
Sulfate	mg/L		250

d. The dissolved oxygen content of the fire/cooling water pond, blowdown pond, and retention pond at the Shasta facility shall not be less than 1.0 mg/L for 16 hours in any 24-hour period.

2. **Lassen Facility (IW-Lassen)**

c. The discharge from the Lassen facility to IW-Lassen shall not have a pH less than 6.0 or greater than 9.0.

d. The discharge taken collectively from Lassen facility low volume waste sources and metal cleaning wastes shall not exceed the limits listed below.

Low volume waste sources include but are not limited to: ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower cleaning wastes, and recirculating water systems.

Table F-23. IW Lassen Internal Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly[1]	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorine, total residual	mg/L		0.2		
Chlorine, free available	mg/L	0.2	0.5		
Oil and Grease	mg/L	15	20		
pH	pH Units			6.0	9.0
Total Suspended Solids	mg/L	30	100		
Chromium, total	mg/L	0.2	0.2		
Copper, total	mg/L	1.0	1.0		
Iron, total	mg/L	1.0	1.0		
Zinc, total	mg/L	1.0	1.0		
126 Priority Pollutants[2]	ug/L	--	--		

(1) For calculating Monthly Averages, use Zero for Non-Detects (<0.1).
(2) No detectable amount from added chemicals.

F. Land Discharge Specifications.

1. **Domestic Sewage**
   The Discharger is required to properly operate, maintain, and monitor the domestic sewage collection, treatment, and disposal system.

2. **Sludge, Wood Waste, and/or Ash Storage**

   i. Collected screenings, sludge and other solids removed from liquid wastes, including pond sediments, shall be disposed of in a 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.

   ii. The storage of sludge, wood waste, and ash the Shasta facility shall be done in a manner to prevent nuisance, pollution or impairment of beneficial uses of the Anderson Cottonwood Irrigation District Canal.

   iii. 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.

   iv. Ash removed from the Shasta 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).

Any other use shall constitute disposal and shall be subject to Title 27, CCR requirements.

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

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional 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 for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity and electrical conductivity, suspended sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

   a. **Bacteria**. The Basin Plan includes a water quality objective that "*[I]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the*

total number of samples taken during any 30-day period exceed 400/100 ml." Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective. This Order contains compliance determination language that recognizes that the Discharger's process waste water and septic system (after improvements are completed) have been shown not to be responsible for the elevated bacteria concentrations that have periodically been detected in the receiving water.

b. **Biostimulatory Substances**. The Basin Plan includes a water quality objective that "*[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.

c. **Chemical Constituents**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses."* Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.

d. **Color**. The Basin Plan includes a water quality objective that "*[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.

e. **Dissolved Oxygen.** The Anderson Cottonwood Irrigation District Canal has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to the Anderson Cottonwood Irrigation District Canal, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

f. **Floating Material**. The Basin Plan includes a water quality objective that *"[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.

g. **Oil and Grease**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain oils, greases, waxes, or other materials 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."* Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

h. **pH.** The Basin Plan includes water quality objective that *"[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses*" This Order includes receiving water limitations for both pH range and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

i. **Pesticides.** The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.

j. **Salinity and Electrical Conductivity (EC)**. 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.*"

This Order requires the Discharger to implement measures to evaluate the sources of and reduce the salinity of the storm water and process water discharge to the Anderson Cottonwood Irrigation District Canal. The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. Special Provision VII.B.2.b of this Order requires the Discharger to prepare a salinity evaluation and minimization plan. Implementation measures to reduce salt loading may include source control and best management practices modifications. Compliance with these requirements may result in a salinity reduction in the discharge to the receiving water.

The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 umhos/cm as an upper level, and 2200 umhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 umhos/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 umhos/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. 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.

A receiving water limitation of 700 umhos/cm as a monthly average and 1,000 as a daily maximum for electrical conductivity is included in this Order 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). If a lower concentration is required to protect salt sensitive crops, then this Order may be reopened and the EC limitation adjusted, as necessary.

A review of the Discharger's monitoring reports from January 2005 through December 2007 shows an average effluent EC concentration of 291 umhos/cm, with a range from 160 µmhos/cm to 445 umhos/cm for 151 samples. None of these results exceeded the most stringent objective of 700 umhos/cm. As a long-term average condition, the storm water discharge meets the most limiting EC objective of 700 umhos/cm. One background receiving water EC sample was collected by the Discharger in October 2004. The background EC concentration was 258 umhos/cm.

k. **Suspended Sediment.** The Basin Plan includes a water quality objective that *"[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses"* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.

l. **Settleable Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.

m. **Suspended Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.

n. **Taste and Odors**. The Basin Plan includes a water quality objective that *"[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.

o. **Temperature.** The Anderson Cottonwood Irrigation District Canal has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that "[a]*t no time or place shall the temperature of COLD or WARM intrastate*

waters be increased more than 5ºF above natural receiving water temperature." See Compliance Determination language in Section VII of this Order (main Order).

p. **Toxicity**. The Basin Plan includes a water quality objective 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."* Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.

q. **Turbidity.** The Basin Plan includes a water quality objective that "*[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*

i. *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*

ii. *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*

iii. *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*

iv. *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent*."

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

Table F-24. Summary of Receiving Water Limitations (partial list).

Parameter	Units	Basin Plan	CTR Acute	CTR Chronic
pH	Standard Units	6.5-8.5	N/A	N/A
Electrical Conductivity @ 25°C	µmhos/cm	700	N/A	N/A
Turbidity	NTU	Variable	N/A	N/A
Fecal Coliform	MPN/100 mL	200	N/A	N/A

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 fecal 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. Discharges from the facility shall not cause underlying groundwater or groundwater downgradient of the facility to:

   a. Contain waste constituents in concentrations statistically greater than background water quality except that coliform organisms shall not exceed 2.2 MPN/100mL over a seven day period;
   b. Exhibit a pH of less than 6.5 or greater than 8.5 pH units;
   c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

4. In February 2007, the Discharger submitted a *Background Groundwater Quality Report*. The report shows statistically and graphically that the background groundwater and the downgradient groundwater are very similar in makeup. Additionally, there is no evidence that site activities have negatively affected groundwater downgradient of the site.

5. In July 2007, the Discharger submitted a *Report of Calculation of Numerical Limits for Groundwater Quality*. Numerical groundwater limitations were calculated using parametric, 99% prediction intervals. Central Valley Water Board staff concurred with the proposed limitations and sampling frequency on 20 July 2007. The Discharger shall maintain compliance with the following numerical groundwater limitations at monitoring wells MW-4, MW-5, and MW-6:

Table F-25. Groundwater Numerical Limitations

Constituent	Units	Limit
Alkalinity	mg/L	100
Arsenic	ug/L	4.1
Bicarbonate	mg/L	100
Calcium	mg/L	20
Chloride	mg/L	7.2
Electrical Conductivity	umhos/cm	230
Magnesium	mg/L	15
Nitrate as N	mg/L	1.20
pH	units	6.90-8.23
Potassium	mg/L	3.5
Sodium	mg/L	14
Sulfate	mg/L	7.5
Total Dissolved Solids	mg/L	210
Zinc	ug/L	300

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

A. Influent Monitoring. Not Applicable

B. Effluent Monitoring

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

2. All effluent monitoring frequencies and sample types have been retained from Order No. R5-2003-0013 to determine compliance with effluent limitations for these parameters.

3. The SIP states that if "…*all reported detection limits of the pollutant in the effluent are greater than or equal to the C [water quality criterion or objective] value, the RWQCB [Regional Water Board] shall establish interim requirements…that require additional monitoring for the pollutant*…." No constituents reported all detection

limits greater than or equal to corresponding applicable water quality criteria or objectives.

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 Cottonwood Creek, an inland surface water providing freshwater aquatic habitat, via its tributaries and the ACID canal. Beneficial uses of the Cottonwood Creek include municipal and domestic supply (MUN); agricultural supply (AGR); water contact and non-contact recreation (REC1 and REC2); freshwater habitat (COLD and WARM); fish migration (COLD); fish spawning (COLD and WARM); 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.** Bi-annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Bi-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. Surface 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. Groundwater monitoring is necessary to assess compliance with groundwater limitations and to assess the impacts of the discharge on the groundwater.

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-001 contains priority pollutants identified in the California Toxics Rule and National Toxics Rule.

3. Internal Waste Stream monitoring

a. IW-Shasta – Does not apply.

b. IW Lassen – Technology-Based effluent limitations apply and are required by the Code of Federal Regulations.

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. 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.

b. 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.

c. **Constituent Study**. There is insufficient information to determine if the discharge contains constituents that have reasonable potential to cause or contribute to an exceedence of the water quality objectives: aluminum, iron, and manganese. This Order requires the Discharger to conduct monitoring for aluminum, iron, and manganese as outlined in the Monitoring and Reporting Program (Attachment E). If the Regional Board determines that implementation of effluent limitations is appropriate and necessary, this Order may be reopened.

d. **Mixing Zone and Dilution Studies.** Section 1.4 of the SIP established procedures for calculating effluent limitations. Included in the procedures is determination of a dilution credit, which the Regional Water Board may approve or disapprove at its discretion. However, the Discharger has not developed the information needed to determine a dilution credit. Consequently, this Order establishes final effluent limitations based on zero dilution. This Order also has a reopener that allows new effluent limitations to be adopted if a mixing zone and dilution study demonstrates that dilution credits are appropriate. A mixing zone in the ACID canal has been established for receiving water temperature impacts. See compliance Determination Section VII of this Order (main Order) for a discussion.

e. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for cadmium, cooper, lead,

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

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

2. Special Studies and Additional Monitoring Requirements

a. **Septic System Improvements.** The Discharger shall prepare a work plan to address improvements to the septic system including expansion of the leachfield area and disinfection/dechlorination of the wastewater at the Shasta facility. The work plan shall be completed and submitted to the Regional Water Board within 3 months of the effective date of this Order for approval by the Executive Officer. Within 3 months of approval by the Executive Officer, the discharger shall complete implementation of the work plan.

b. **Salinity Evaluation and Minimization Plan**. The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility as required in Section VI.C.3.b.

c. 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 the whole effluent chronic toxicity test performed by the Discharger on 4 October 2006, the discharge does 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 a pattern of toxicity has been demonstrated.

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

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

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

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

iii. **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.

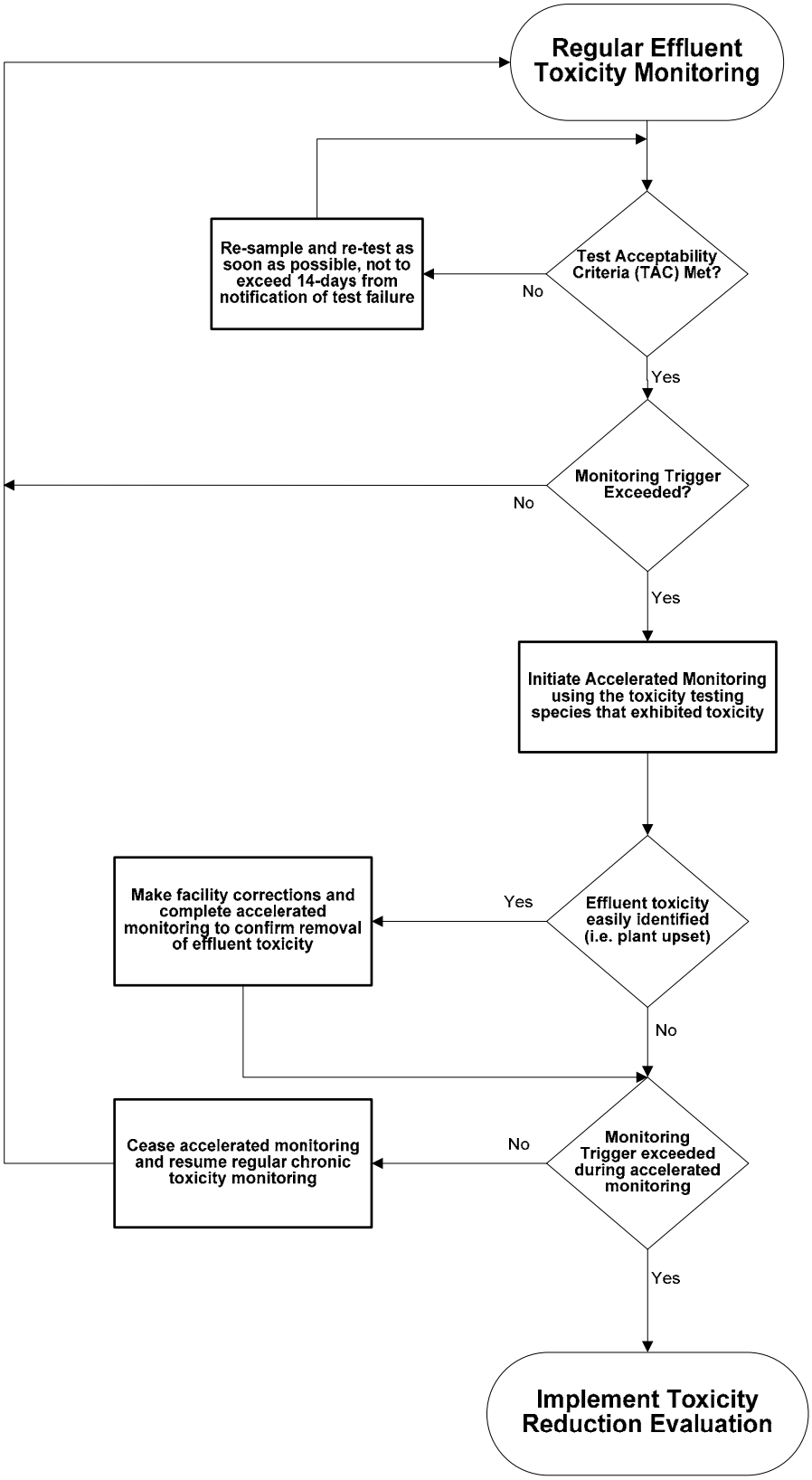
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.

- *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



d. **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.

e. **Groundwater Monitoring.**
The previous Order established requirements to determine background groundwater quality and to submit a technical report that proposed specific numerical groundwater limitations. A Report on Numerical Limits for Groundwater Quality was submitted to the Regional Water Board on 20 July 2007. Groundwater monitoring shall continue according to Table E-6 Groundwater Monitoring Requirements of Attachment E.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program (PMP)**.

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

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. Annual 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:

(1) All PMP monitoring results for the previous year;
(2) A list of potential sources of the reportable priority pollutant(s);
(3) A summary of all actions undertaken pursuant to the control strategy; and
(4) A description of actions to be taken in the following year.

4. Salinity Evaluations and Minimization Plan. An Evaluation and Minimization Plan for salinity is required in Section VI.C.3.b (main Order) of this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to the receiving water..

5. Construction, Operation, and Maintenance Specifications

a. Ponds shall be managed to prevent breeding of mosquitoes. In particular:

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

ii. Weeds shall be minimized.

iii. Dead algae, vegetation, and debris shall not accumulate on the water surface.

b. Freeboard shall not be less than two feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond 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 (916) 464-3291 (or to the Regional Water Board staff engineer 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. COMPLIANCE DETERMINATION

1. **Compliance with Receiving Water Bacteria Limitations**
   Once the septic system improvements, including disinfection, are completed, the Discharger will no longer have any controllable sources of bacteria. Therefore, the Discharger shall not be held responsible for exceedences of receiving water violations for bacteria unless it can be shown that the Discharger's processes are responsible for the exceedances. The Regional Water Board recognizes that natural sources such as waterfowl in the retention pond may be responsible for the elevated bacteria concentrations that are periodically detected in the retention pond and the ACID canal receiving water. The Discharger is required to properly operate, maintain, and monitor the domestic sewage collection, treatment, and disposal system, including the disinfection process.

2. **Compliance with Receiving Water Temperature Limitations**
   See Section VII of this Order (main Order) for a discussion.

IX. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for Fawndale Rock and Asphalt. 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 5 April 2009.**

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: 23/24 April 2009
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 Daniel Warner at (530) 224-4848.

ATTACHMENT G – Summary of Detected Priority Pollutants and Reasonable Potential Analysis

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Antimony	ug/L	0.030	0.090	6.0	N/A	N/A	14	4,300	6.0	N/A	No
Arsenic	ug/L	1.06	2.08	10.0	340	150	N/A	N/A	10.0	N/A	No
Cadmium	ug/L	0.051	0.020	0.501	3.36	2.005	N/A	Narrative	0.5005	N/A	No
Chromium (III)	ug/L	0.89	0.49	167.10	1401.9	167.1	N/A	Narrative	N/A	N/A	No
Chromium (VI)	ug/L	1.0	0.800	11.43	16.29	11.43	N/A	Narrative	50.0	N/A	No
Copper	ug/L	2.28	1.03	7.46	10.94	7.46	1,300	N/A	10.59	N/A	No
Lead	ug/L	0.152	0.201	2.28	58.5	2.281	N/A	Narrative	N/A	15.0	No
Nickel	ug/L	2.44	0.30	41.82	376.1	41.8	N/A	N/A	N/A	100.0	No
Selenium	ug/L	0.5	0.70	5.0	20	5	N/A	Narrative	N/A	50.0	No
Silver	ug/L	0.005	0.004	2.59	2.589	N/A	N/A	N/A	N/A	N/A	No
Thallium	ug/L	0.009	0.009	1.70	N/A	N/A	1.7	6.3	N/A	2.0	No
Zinc	ug/L	7.1	5.4	28.18	96.02	96.02	N/A	N/A	28.12	N/A	No
Cyanide	ug/L	2.0	2.00	5.20	22	5.2	700	220,000	N/A	200.0	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 Available
ND = Non-detect

Footnotes:
(1) Hardness = 77 mg/L as CaCO.

ATTACHMENT H – CALCULATION OF WQBELS – Not Applicable

		Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations									Final Effluent Limitations	
Parameter	Units	HH	CMC	CCC	HH	CMC	CCC	ECA_{HH}= $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	MDEL $_{HH}$	ECA MULTIPLIER $_{ACUTE}$	LTA_{ACUTE}	ECA MULTIPLIER $_{CHRONIC}$	LTA $_{CHRONIC}$	LOWEST LTA	AMEL MULTIPLIER $_{95}$	$AMEL_{AL}$	MDEL MULTIPLIER $_{99}$	$MDEL_{AL}$	LOWEST AMEL	LOWEST MDEL

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.

II. Monitoring Requirements.

A. Bi-annual priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

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 24-hour flow proportioned composite samples. All receiving water samples shall be taken as grab samples.

D. Modifications. Check with your Regional Water Board staff contact prior to sampling. Modifications to this study may be made.

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
94	Naphthalene	91203	USEPA IRIS	14	10	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]		
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
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	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]		
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
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300

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]		
	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
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

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]		
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
	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

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]		
	Sulfite (as SO_3)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	^{o}F		
	Total Disolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

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

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

(3) - For haloethers

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

(5) - For nitrophenols.

(6) - For chlorinated naphthalenes.

(7) - For phthalate esters.

(8) - Basin Plan objective = 2 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 Fluoresence, USEPA

III. Additional Study Requirements

A. Laboratory Requirements. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code 13176 and must include quality assurance/quality control data with their reports (ELAP certified).

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.